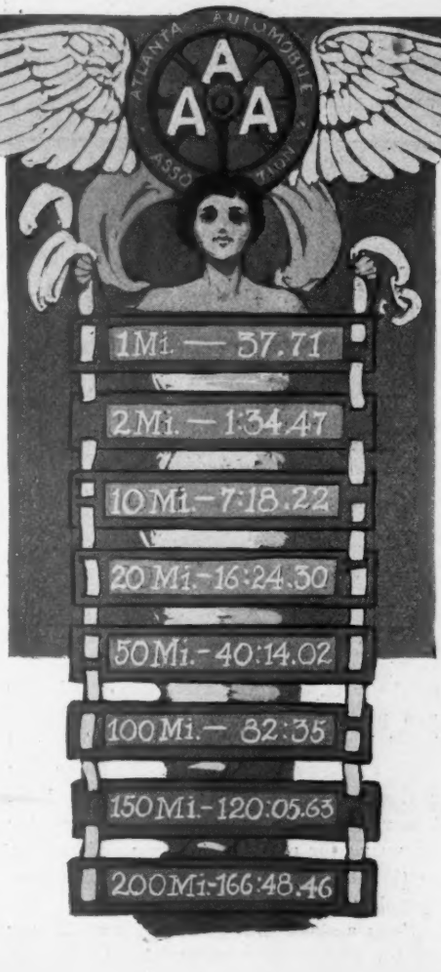
VOL. XVI., No. 21 CHICAGO, NOVEMBER 18, 1909 $3.00 PER YEAR

MOTOR AGE

YESTERDAY AND TODAY OF MOTORING—THE HAYNES OF 1893 AND THE 120-HORSEPOWER FIAT OF 1909

Atlanta's New Records

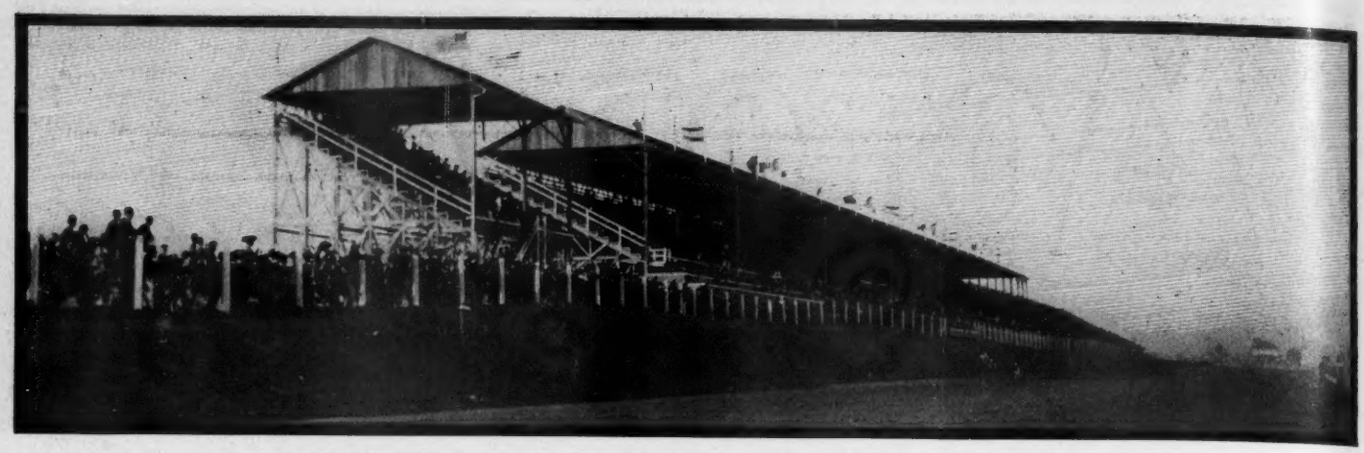


ATLANTA, Ga., Nov. 13—The American speedway record table, which was originated at the opening of the Indianapolis speedway in August, has suffered wholesale fracturing at the 5-day meet at the new 2-mile speedway in this city. Every record from 1 mile to 200 has been shattered. When the Atlanta speedway was opened formally on November 9 this breaking of records began, when Strang in his 120 Fiat placed the mile record at :37.71, as compared with :43.1 established by Oldfield in his Benz at Indianapolis. This auspicious opening was a good indication of what was carried out during each of the 5 days of the meet, not a single day passing without the shattering of records and every classification had a new speed mark established.

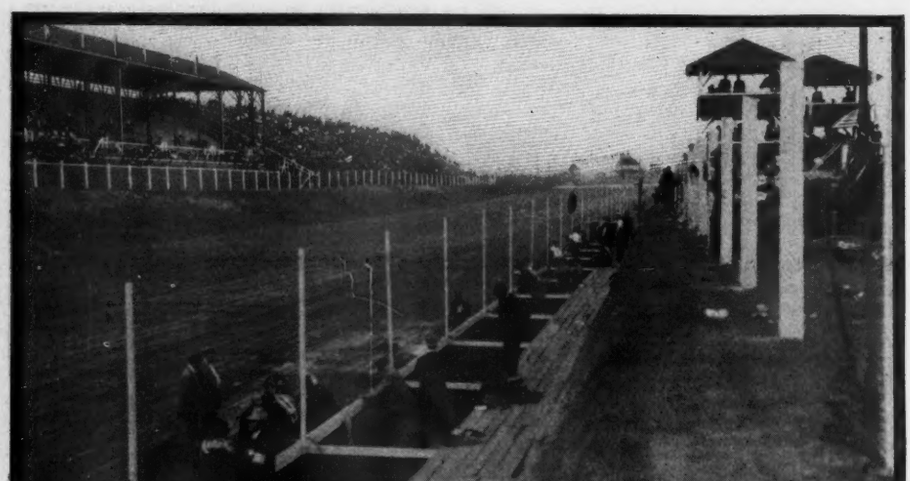
Never before has a race meet in America resulted in such excellent racing sport. In not a few of the events the winning car was but a matter of 2 or 3 feet in the lead. After the opening day the handicap events, which were numerous, were well contested, on three occasions the first three cars being bunched so that the winner had not the advantage of 18 inches. This close contest work created an enthusiasm in the spectators rarely seen at race meets and was largely responsible for the unexpected attendance which turned out for all 5 days. From day to day the attendance varied from 20,000 to 28,000, all of which were housed in the grand stands and bleachers. At a conservative estimate the receipts should approximate over $100,000, which is enormous for a section so sparsely populated as the country surrounding Atlanta.

A careful analysis of the attendance showed that the great majority was from out of town places, excursions from north, south, east and west pouring their thousands into the city. During the day all of these attended the races, and in the evening those who were not too tired visited the national motor car show in the Auditorium.

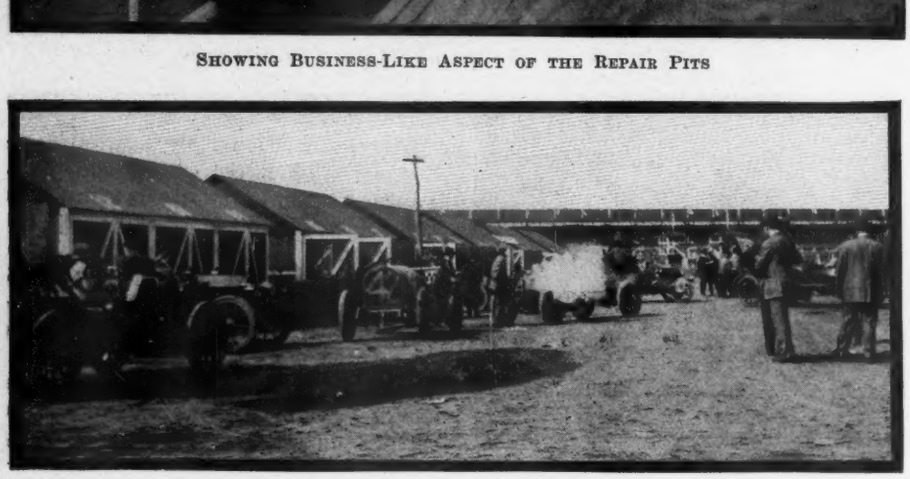
Most important of all, in connection with the meet, was the freedom from accidents, and the satisfactory condition of the track. It was generally predicted that the track surface of Georgia gravel and sand mixed with oil would not stand the terrific pace. This prediction proved false and at the end of the meet the track was in practically as good if not better condition than at the start. It is true three or more minor accidents occurred, none of which resulted in injury to drivers. The Marmon car on the



ATLANTA'S LONG HOME STRETCH AND THE CROWDED STANDS ON LAST DAY OF MEET



SHOWING BUSINESS-LIKE ASPECT OF THE REPAIR PITS



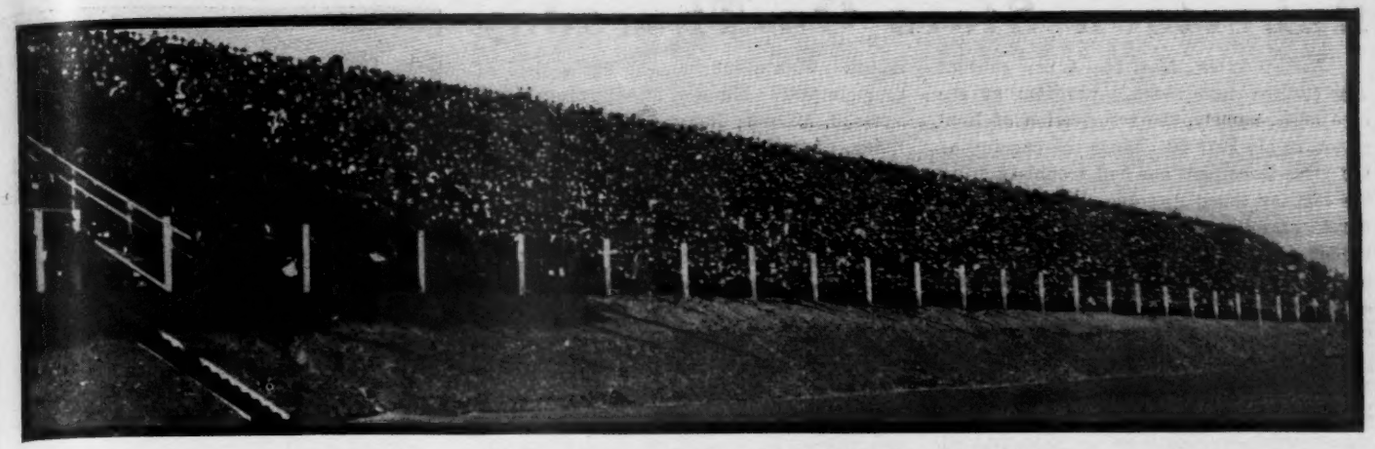
RUE DE GARAGE ON ONE OF ITS BUSY DAYS

second day threw a tire and climbed the bank at the inside of the course, wrecking three of the wheels, but otherwise not injuring the car. It was repaired and competed in the remaining races. The Pope-Toledo Vanderbilt cup racer blew up a rear pair of cylinders, upset on the track and was burned, but the driver and mechanism were thrown clear and not injured. The Apperson Jackrabbit and Lorimer's Chalmers came together on the fourth day, due to the Apperson throwing a tire on the turn. The front axle of the Chalmers was torn off and the Apperson damaged, but both were back in the races the following day. The National cars suffered some accidents, one of the 40's throwing a wheel, and the six-cylinder breaking a crankshaft. The Hotchkiss racer broke its crankcase before the start of the meet. All told the series of mishaps was particularly small when it is remembered in all thirty-two events were run and many of the cars contested in not fewer than a dozen events. The meet was too long, however, this continuous work proving too strenuous for many of the cars and drivers, so that the last day's sport was not comparable with what it should have been.

From a standpoint of speed Lewis Strang in his Fiat 120, with its double exhaust valves, carried off the honors, setting new marks for every distance up to 10 miles, the latter record being 7:01.94. Walter Christie in his front-wheel drive car was a contender for speed honors and although his car was as fast as Strang's on the straightaway he lost out on the turn. Barney Oldfield had the Hemery Benz on hand for a couple of days, after which he deserted the meet, leaving for San Antonio, Texas.

In the strictly stock car classifications the Chalmers 30's, driven by Knipper and Matson, made a clean sweep in the 161-230 cubic inch classification, although they were closely pressed on the two opening days by model 10 Buick, which pushed them in the 10 and 100-mile events. During the last 3 days the Chalmers had no competitors in their classes. In the 230-301 cubic inch classifications the representation was small, being confined to Marmon 32, 4½ by 4½, and Buick 4 23/64 by 5. The Buick proved the faster, but failed to withstand the strenuous work, so that Harroun in the Marmon carried off the majority of honors in this class, winning the 120-mile event and capturing three shorter events in its class. In the 301-450 cubic inch classification the contests were particularly strenuous, the fields being large, including Nationals, Chalmers-Detroits, Buick, Rainier, Renault, Marmon, Apperson and Matheson. The Buick 4½ by 5 won the 200-mile race in this classification, but the greater majority of the remaining honors were taken by Aitken in the National, and Stillman in the Marmon. Disbrow in the Rainier, 5⅛ by 5¼ proved the winner of the 200-mile race in the 451-600 class, although Robertson in his Fiat 60 was the undoubted star in this classification. The entries in the 451-600 class were limited, and many cars from the 301-450 class carried extra weight and competed in the 451-600 class. This list included two Chalmers, Buick, and Nationals. Harroun's Marmon in the 230-301 class carried sufficient weight to allow it to compete in the 451-600 class, and had the distinction of being one of the five to finish the 300-mile race in this classification.

Strang's Fiat 120 did not prove such a wonder as it had been anticipated. It made

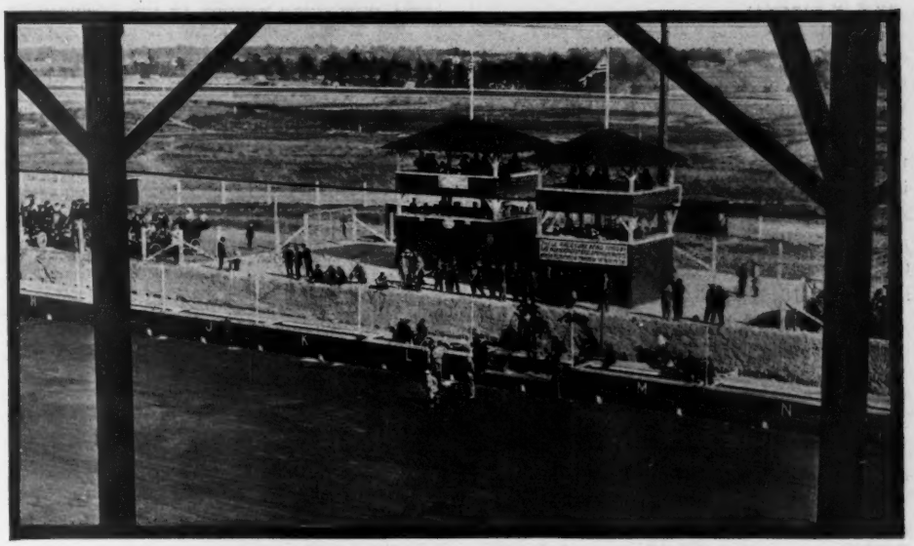


BLEACHERS AT ATLANTA WERE FILLED LIKE THIS EACH DAY OF THE MEET

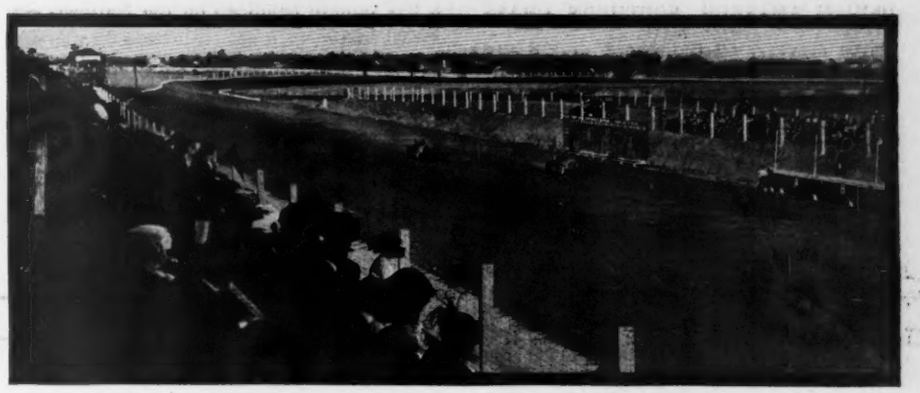
the fastest time on the course but proved useless for long-distance events, because of wearing out the tires. In the 50-mile free-for-all tires put it out of running. In the strict stock classes Robertson's Fiat 60 proved the fastest, with Aitken's National 40 second. The Rainier did poor work during the earlier part of the meet but Disbrow had it running in excellent shape towards the end. The three Renaults were not fastest in their classes but carried off honors for consistency, only one of them stopping at any time during the races and that for a broken spring leaf. Undoubtedly the palm for consistency went to Roy Harroun driving Marmon 32, 4½ by 4½. This car finished in every event in which it started, and had not more than one or two stops, which were for changing spark plugs and magneto troubles. The two Chalmers 30's established enviable reputations for themselves. Between them they made but three stops in all of the races, and those for minor troubles. They constantly maintained a pace ranging from 59 to 62 miles per hour in all races.

It is rarely in a long race meet that honors are so equally shared among the different contestants. The Fiat team of three cars, including the 120 driven by Strang, won ten firsts and one second. The four Chalmers cars carried five firsts and eleven seconds. The National, Marmon and Buick camps had each four firsts to their credit. The Rainier and Stearns won two firsts each, and Apperson and Benz were credited with one each.

From the driver point of view Robertson in the Fiat won first honors, having five firsts, one second, and three thirds, and winning all told $1,100 in prize money. Matson in the Chalmers 30 was second with two firsts and five seconds, and winning $1,000. Disbrow in the Rainier was third, winning two firsts and one second, and carrying off $1,000. Harroun in the Marmon captured three firsts, three seconds and a third, which made a total of $850. Chevrolet came fifth, winning two firsts and $700. The others in order of money won were: Basle, Knipper, Aitken, Dingley, Stillman, Strang, L. Basle, Lorimer, Nelson, A. Chevrolet and Christie.



BIRDSEYE VIEW OF THE TAPE AS SEEN FROM GRAND STAND



VIEW OF THE HOME STRETCH AND THE NORTH TURN OF THE TRACK

The following is a complete list of officials at the meet. From start to finish everything went off with despatch, not a single delay occurring:

Management—Asa G. Candler, Jr., Edward M. Durant, Edward E. Clapp.
Honorary referee—Robert F. Maddox, mayor of Atlanta.
Referee—A. R. Pardington, Long Island Automobile Club.
Starter and clerk of course—Fred J. Wagner, New York.
Assistant to starter—E. H. Broadwell, Detroit.
Announcer—Edward E. Clapp, Atlanta.
Paddock clerk—H. T. Waite, New York.
Judges—Samuel A. Miles, Alfred Reeves, Harvey Granger, Fred J. Robinson, Dr. J. E. Dedman, Cornelius B. Garrett.
Timers—C. H. Warner, Beloit, Wis.; Ed L. Wight, Jr., Atlanta.
Scorers—Henry C. Heinz, John E. Smith, W. V. Kriegshaber, C. F. Wilkinson, M. R. McClatchey, F. B. Eaves, G. M. Seewald.
Technical committee—David Beecroft, Chicago.
Representative contest board A. A. A.—C. I. Ryan.

Michelin tires carried off the lion's share of the glory, these winning all of the big events. Fisks were used on the Rutherford Stearns, winner in the amateur events. Chevrolet's winning Buick used the Remy magneto and Schehler carbureter. The Kingston carbureters were used by the Chalmers-Detroit drivers. The Bosch magneto was used on all of the Fiat, Marmon and National cars.

Robertson Stars On Thursday

ATLANTA, Ga., Nov. 11—A new element entered into today's program at the race meet, namely, the resurrection of Robertson in his Fiat 60. Since the opening of the meet Robertson has had trouble getting his big car tuned up; one day it was carbureter trouble, another day the oiler was broken, but today everything worked and he had no trouble winning the 10-mile stock chassis event, 451 to 600 cubic inches. His time for this distance was 7:47.71, or at a pace of 76.9 miles per hour. The previous 10-mile record was made by Oldfield in a Benz 120 at Indianapolis, in 8:15.9. Second honors went to Aitken in the National 40 in 8:22.87. Harding in the Apperson was third in 8:23.17.

Two other records were broken today. One of the most spectacular was the 20-mile stock chassis, 301 to 450 cubic inches, which was won by Aitken in the National 40 in 16:42.76, at 71.7 miles per hour. The old record for this distance was 16:53.8 and it is interesting to know that in addition to Aitken two other cars broke this old record, namely, Stillman in the Marmon 35, his time being 16:46.86, and Lorimer in a Chalmers 40 in 16:49.63.

A third record to go today was the 120-mile for stock chassis, 231 to 300 cubic inches. This event brought out a field of four starters: Marmon 32, Harroun; Chalmers 30, Matson; Renault 20-35, Basle, and Buick, Chevrolet. It was looked upon as a Chevrolet event and the daring Frenchman led for nearly half the distance when a valve cage broke. The valve was removed and the hole plugged with a piece of wood. Chevrolet continued the race on three cylinders, but could make no better than fourth place. The Marmon was first in 109:26.96, or 65.7 miles per hour. This was the car with which Harroun won the Wheatley Hills trophy at the recent Vanderbilt. Matson in a Chalmers was second in 1:57.22, or 61.3 miles per hour. The end of this race was made specially interesting because of the possibilities of the Buick beating the Renault out of third place. Had the race been a couple of miles longer this would have taken place. The Renault was a stock chassis owned by Edward M. Durant of Atlanta and was not a starter until 15 minutes before the race began. During this time it was entirely stripped for the event, fitted with new tires, and replenished throughout. Robertson, Basle, Strang and others showed their sportsmanship by pitching in and helping strip the Renault for racing. It ran a consistent race, having to stop only for oil.

In the 10-mile amateur event for the southern championship John Rutherford in the Stearns 60 was an easy winner in 8:42.63. Oldknow in the Buick was second and Mackenzie in a Chalmers third.

The 20-mile free-for-all handicap brought a new car into the winning class, this being Rainier 50 piloted by Disbrow. It was given a 2¾ minute handicap on the National six, which was scratch car. Marmon 32 was second and Marmon 35 third. In this event the scratched cars were too much handicapped.

In the 10-mile free-for-all handicap Robertson in the Fiat was first, his actual running time being 7:44.8. Aitken's National 40 was second, having run with a 32 second handicap on the Fiat. Stillman's Marmon with the same handicap was third.

The 4-mile stock chassis event, 161 to 230 cubic inches, resulted in a victory for Matson in the Chalmers 30, in 4:05.52, or practically at a 60-mile-per-hour pace.

THURSDAY'S RACE SUMMARIES

120-MILE, STOCK CHASSIS, 231-300 CUBIC INCHES

Car	H. P.	Driver	Time
Marmon	32	Harroun	109:26.96
Chalmers	30	Matson	117:22.92
Renault	..	Basle	129:15
Buick	..	Chevrolet	

10-MILE AMATEUR, SOUTHERN CHAMPIONSHIP

Stearns	60	Rutherford	8:42.63
Buick	30	Oldknow	9:04.17
Chalmers	40	Mackenzie	

20-MILE FREE-FOR-ALL HANDICAP

Rainier	50	Disbrow	19:51.15
Marmon	32	Harroun	20:10.63
Marmon	35	Stillman	20:23.41
Fiat	60	Robertson	
Apperson	50	Harding	
National	40	Kincaid	
Chalmers	40	Dingley	
Chalmers	40	Lorimer	
E-M-F	30	Jones	
National	60	Aitken	Failed to finish

The following were the handicaps: National, scratch; Fiat, 30 seconds; Apperson, 50 seconds; National 40, 60 seconds; Chalmers, 75 seconds; Marmon, Stillman, 2 minutes; Harroun's Marmon, 2½ minutes; Rainier, 2¾ minutes; Renault, 3 minutes; E-M-F, 5 minutes.

20-MILE STOCK CHASSIS, 301-450 CUBIC INCHES

National	40	Aitken	16:42.76
Marmon	35	Stillman	16:46.86
Chalmers	40	Lorimer	16:49.63
Chalmers	40	Dingley	

10-MILE STOCK CHASSIS, 451-600 CUBIC INCHES

Fiat	60	Robertson	7:47.71
National	40	Aitken	8:22.87
Apperson	50	Harding	8:23.17

4-MILE STOCK CHASSIS, 161-230 CUBIC INCHES

Chalmers	30	Matson	4:05.52
Chalmers	30	Knipper	4:08.42

10-MILE FREE-FOR-ALL HANDICAP

Fiat	60	Robertson	8:39.08
National	40	Aitken	8:29.08
Marmon	35	Stillman	8:50.53
Apperson	50	Harding	
Rainier	50	Disbrow	
Marmon	32	Harroun	
Stearns	60	Marquis	

Robertson's Fiat was scratched, giving Aitkens' National and the Marmon 32 seconds.

WEEK'S WORK OF THE CARS

Car	1st	2d	3d	Unplaced
Fiat	10	1	3	5
Chalmers-Detroit	5	11	9	10
National	4	6	2	6
Marmon	4	4	3	5
Buick	4	1	3	4
Rainier	2	1	0	8
Stearns	2	2	0	0
Apperson	1	0	3	2
Benz	1	2	0	0
Christie	0	2	3	0
Matheson	0	1	0	1
Pope-Hartford	0	1	0	0
Renault	0	0	3	3
Pope-Toledo	0	0	0	2
White gas	0	0	0	1
Fuller	0	0	0	2
E-M-F	0	0	0	3
Knox	0	0	0	1

Strang in the Fiat 120 set the mile mark at :37.71 and the 10-mile mark at 7:01. He was the speed king of the meet and won five first prizes.

Disbrow in the Rainier 50 won the 200-mile 451-600 stock chassis race in 273:48.32, and won the 20-mile free-for-all handicap.

Aitken in a National 40 won the 20-mile 301-450 stock chassis race in 16:92.76, breaking the previous record of 16:83.8. He won four firsts, five seconds and two thirds.

Chevrolet in his Buick 30 won the 200-mile 301-450 stock chassis race for the Coca-Cola trophy in 166:48.46 or at 72:2 miles per hour—the fastest record at the meet for this distance. He won two firsts.

Harroun in his Marmon 32 showed the greatest consistency of any driver at the meet. He finished every event in which he entered and won three firsts.

George Robertson established a new 50-mile record of 40:14.02 in the free-for-all and was the big factor in the 200-mile race.

Fiat Smashes Record Friday

ATLANTA, GA., Nov. 12—Today's program of eight events at the speedway was electrified by the phenomenal work done by George Robertson in his Fiat 60, Robertson establishing a new record for 50 miles in the free-for-all event, covering this distance in 40:14:02, or at a pace of 74.5 miles per hour. The previous speedway record for this distance was established by John Aitken in a National at Indianapolis, his time being 44:21:02. In today's event Aitken succeeded in the free-for-all in getting within his old mark, doing the distance in 43:11:41. Stillman in this same race in his Marmon 35 also beat the old record, his time being 43:30:56. A fourth car in this event, Dingley in a Chalmers 40, did the half century in 43:49:28. No better indication of the speed possibilities of the Atlanta speedway can be cited than this fact, that in an event with eight starters, four should succeed in breaking all previous records. In the 50-mile free-for-all it was generally conceded that Strang in his 120 Fiat would be the victor, but he set too fast a pace for the big machine and the blowing out of a right rear tire before the race was half over eliminated his chances. As clincher tires are used on the big Fiat it was impossible to make a change and catch up with the field.

At the start Robertson got the advantage, but was passed by Strang at the first turn. At the completion of the first lap Strang was 8 seconds ahead of Robertson's Fiat with Aitken's National, Harding in the Apperson, Lorimer in the Chalmers 40, Dingley in Chalmers 40, Disbrow in the Rainier, well bunched, and Stillman in the Marmon 35 last. Lap two saw Strang increase his lead to 12⅕ seconds, with Robertson second and the others maintaining their positions in the first lap. In the third circuit Strang increased his margin to 17 seconds over Robertson and he was 40 seconds in advance of the others, consisting of the National, Chalmers and Apperson. In lap four Strang continued to lead, gaining 24 seconds on Robertson and leading Aitken by 51, Apperscon by 54, Lorimer by 55, and Dingley by 57. The Rainier and Marmon were running a mile back. In the sixth circuit Strang lapped the Rainier on the first turn and caught the Marmon in the back stretch. At the end of this lap he was 38 seconds ahead of Robertson, and had increased his lead on the National to 75 seconds, and on the Apperson and Chalmers to 80 seconds. When approaching the end of this sixth circuit Strang lapped both the Chalmers. By the end of the eighth circuit he had lapped the National and Apperson and was fast gaining on Robertson. At this time Robertson had lapped the Chalmers and some of the other competitors. Strang's tire troubles soon after changed the entire aspect of the field, putting Robertson in first and Aitken in second place. From this point the race became a procession, the struggle among the National, Marmon and Chalmers being but a matter of seconds, there being but 38 seconds difference among them at the finish.

RECORD OF THE DRIVERS

Driver	1	2	3	Prizes
Robertson, Fiat	5	1	3	$1,100
Matson, Chalmers	2	5	1	1,000
Disbrow, Rainier	2	1	0	1,000
Harroun, Marmon	3	3	1	850
L. Chevrolet, Buick	2	0	0	700
C. Basle, Renault	0	0	2	450
Knipper, Chalmers	3	3	2	400
Aitken, National	4	5	2	350
Dingley, Chalmers	0	2	1	350
Stillman, Marmon	1	1	3	250
Strang, Fiat	5	0	0	200
L. Basle, Renault	0	0	0	*200
Lorimer, Chalmers	0	1	3	150
Nelson, Buick	0	0	3	150
A. Chevrolet, Buick	1	0	0	100
Christie, Christie	0	2	3	50
Harding, Apperson	1	0	3	..
Kincaid, National	0	1	1	..
Stoecker, Benz	1	0	0	..
Oldknow, Buick	1	1	0	..
Rutherford, Stearns	2	1	0	..
Shaab, Renault	0	0	1	..
Marquis, Stearns	0	1	0	..
Whalen, Matheson	0	1	0	..
Travis, Chalmers	0	0	3	..
Kiser, Pope-Hartford	0	1	0	..

* Fourth prize

FRIDAY'S RACE SUMMARIES

10-MILE STOCK CHASSIS HANDICAP, 231-300 CUBIC INCHES

Marmon	32	Harroun	9	:51.01
Chalmers	30	Knipper	9	:51.23
Chalmers	30	Matson	9	:51.27

Chalmers had 24 seconds handicap, making Marmon's actual running time 8:27.01.

24-MILE STOCK CHASSIS, 161-230 CUBIC INCHES

Chalmers	30	Knipper	23	:40.42
Chalmers	30	Matson	23	:40.77

20-MILE HANDICAP, CONTESTANTS NEW YORK-ATLANTA TOUR

Benz		Stoecker	20	:36.86
Matheson		Whalen	21	:15.63
Renault		Shaab	21	:55.83

Matheson had 1½ minutes and Renault 1 minute handicap, making Benz' actual running time 19:06.86.

12-MILE STOCK CHASSIS, 301-450 CUBIC INCHES

National	40	Aitken	10	:07.65
Chalmers	40	Dingley	10	:09.28
Chalmers	40	Lorimer	10	:10.43
Rainier	50	Disbrow		
Marmon	35	Stillman		

2-MILE FREE-FOR-ALL

Fiat	120	Strang	1	:34.47
Christie	130	Christie	1	:41.70
Fiat	60	Robertson	1	:42.30
Apperson	50	Harding		
Rainier	50	Disbrow		

6-MILE STOCK CHASSIS, 451-600 CUBIC INCHES

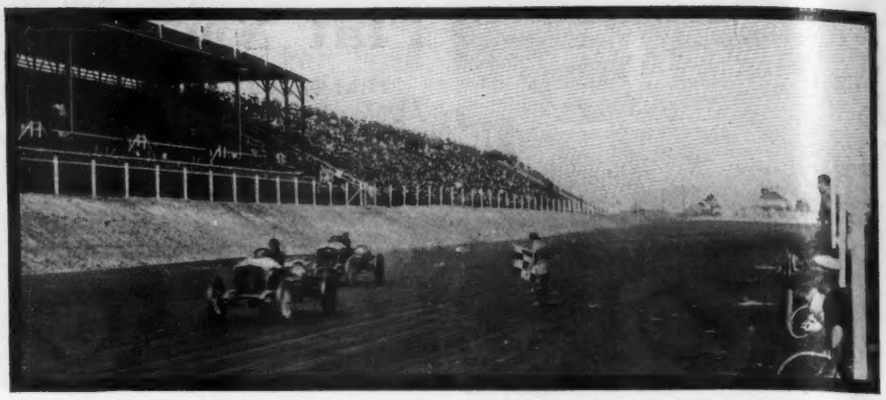
Fiat	60	Robertson	4	:43.37
National	40	Aitken	5	:11.11
Apperson	50	Harding	5	:13.02
Rainier	50	Disbrow		

24-MILE STOCK CHASSIS FOR AMATEURS, KRIEGSHABER TROPHY

Stearns	60	Rutherford	20	:35.25
Pope-Hartford		Kiser	23	:44.53
Buick	30	Oldknow	Did not finish	
Chalmers	40	Mackenzie	Did not finish	

50-MILE FREE-FOR-ALL

Fiat	60	Robertson	40	:14.02
National	40	Aitken	43	:11.41
Marmon	35	Stillman	43	:30.56
Chalmers	40	Dingley	43	:49.28
Rainier	50	Disbrow	44	:38.55
Fiat	120	Strang	Did not finish	



NATIONALS FINISIHING ONE, TWO, IN FIRST RACE ON SPEEDWAY

Disbrow in Rainier Captures the

The 6-mile stock chassis race, 451 to 600 cubic inches, was a walkaway for Robertson in his Fiat. Only four starters came to the tape in this event, these being the Robertson's Fiat, Aitken's National, Harding's Apperson, and Disbrow's Rainier. Robertson made the 2-mile laps exactly 10 seconds faster than the National. At the end of the first lap the National, Rainier and Apperson were well bunched. Before the second circuit was completed Aitken began pulling away from the Apperson, and the Rainier trailed in fourth place. The third and last lap saw it a procession, with Robertson over half a mile in the lead of Aitken, who had a big margin on the Apperson. The Rainier was fourth.

A feature event of today was the 20-mile handicap for cars which contested in the New York-Atlanta tour, these machines contested as stripped chassis. The Benz was placed on scratch, the Renault given 1 minute handicap and the Matheson 1½ minute. Ernest Stoecker, driving the Benz, gradually worked up on his two competitors, catching the Renault before the race was half over and overtaking the Matheson six at the end of the second last lap. The Benz was a winner by ¼ mile, his time being 19:06.86. The Matheson time was 21:15.63, and the Renault 21:25.83.

The 24-mile free-for-all amateur for the Kriegshaber trophy brought out a field of four starters—J. Rutherford in a Stearns 60, J. F. Kiser, Pope-Hartford, W. Oldknow, Buick 30, and H. C. Mackenzie, Chalmers 40. This race was a procession for Rutherford in his Stearns. The Chalmers and Buick dropped out early in the race, and the Stearns finished a lap and a half in advance of the Pope-Hartford. Rutherford's time for the 24 miles was 20:35.25. The Pope-Hartford time was 23:44.53.

Much expectation had been placed on the 2-mile free-for-all, which was to be run in heats, only one, however, materializing. There were five starters—the two Fiats, Christie, Apperson and Rainier. Robertson got the start on Strang in the big Fiat, but at the first turn Strang passed his rival and led to the finish. The struggle for second honors was between Robertson and Christie. Robertson led Christie until the middle of the back stretch, when the latter, showing terrific speed, shot ahead. Christie lost out on the turn, however, Robertson passing him, and it looked as if it would be Fiat one, two. Christie had reserve power for the home stretch and won second place handily. The Apperson and Rainier were considerably to the rear. The times were:

Fiat 120—Strang, 1:34.47.

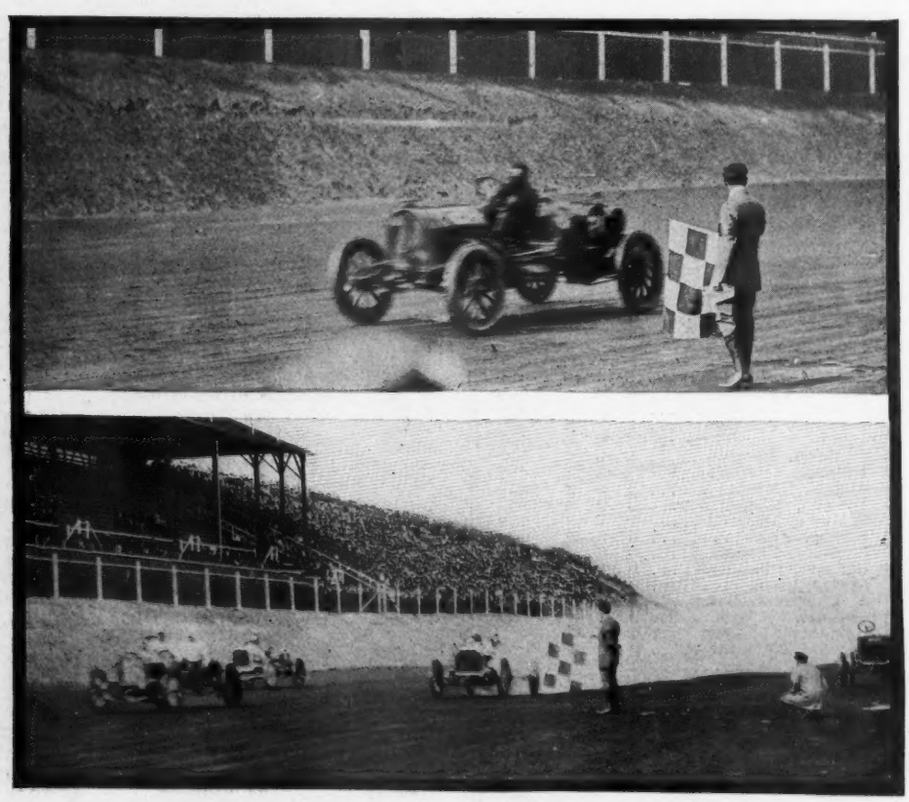
Christie 130—Christie, 1:41.70.

Fiat 60—Robertson, 1:42.30.

Three other events were run. The 24-mile stock chassis, 161 to 230, had but two starters, the Chalmers 30, driven by Knipper and Matson. These cars hung together through the twelve laps, Knipper winning by ¼ second, time 23:40.42, or 61 miles per hour.

The 10-mile handicap for cars under 300 cubic inches was won by Harroun in the Marmon. The Chalmers 30's, driven by Matson and Knipper, were given 24 seconds advantage.

John Aitken in the National was an easy winner in the 12-mile stock chassis, 301 to 450 cubic inches, beating his nearest rival, Dingley in a Chalmers 40, by a couple of seconds. Lorimer was third and Rainier fourth.



STILLMAN IN MARMON 35 WINNING 10-MILE HANDICAP
TWO CHALMERS 30'S AND BUICK 10 IN 10-MILE FINISH

SATURDAY'S RACE SUMMARIES

10-MILE STOCK CHASSIS, 161-230 CUBIC INCHES

Chalmers	30	Matson	10:41.06
Chalmers	30	Knipper	13:35.73

10-MILE STOCK CHASSIS HANDICAP, 231-300 CUBIC INCHES

Buick	30	Chevrolet	9:03.18
Marmon	32	Harroun	9:18.7
Chalmers	30	Matson	9:18.9
Chalmers	30	Knipper	.....

Buick and Marmon were scratched cars; two Chalmers had 52 seconds handicap each, making the Buick's actual running time 8:33.18 and Marmon's 8:48.7.

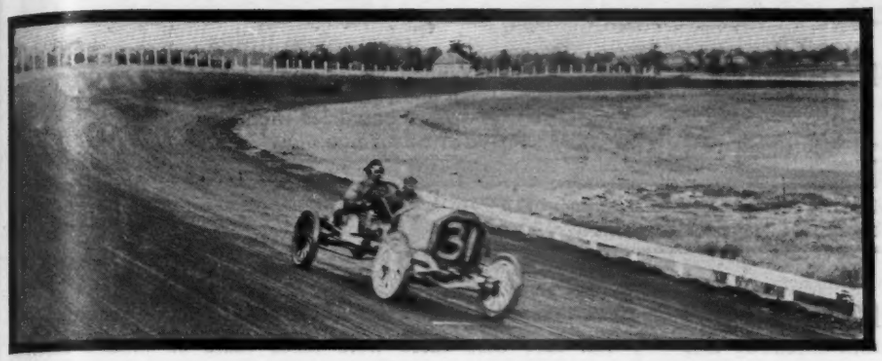
8-MILE FREE-FOR-ALL HANDICAP

National	40	Aitken	7:42.73
Rainier	50	Disbrow	7:48.63
Fiat	60	Robertson	7:59.50
National	40	Kincaid	Did not finish
Matheson	50	Whalen	Did not finish

Fiat scratched; National, 40 seconds; Rainier, 70 seconds; Matheson, 90 seconds.

12-MILE STOCK CHASSIS, 301 TO 450 CUBIC INCHES

Buick	30	Chevrolet	10:12.56
Chalmers	40	Dingley	10:28.83
Chalmers	40	Lorimer	10:37.76
Rainier	50	Disbrow	.....



CHEVROLET IN BUICK WINNING 200-MILE RACE ON TUESDAY

200-Mile City of Atlanta Trophy

ATLANTA, Ga., Nov. 13 — Today witnessed the finish of Atlanta's big 5-day race meet on its new 2-mile speedway, and, contrary to all expectations, the track surface is at the finish of today's 200-mile race in equally as good condition if not better than when the meet began. It is true too much oil has been used, which has made it slippery in places, but the surface has held up admirably.

Today's races have been unsatisfactory; 5 successive days are too much for drivers, cars and officials, which was conclusively shown today in the closing event, the 200-mile race for stock chassis, 451 to 600 cubic inches, in which only five of the twelve cars which started finished. The daily work at high speeds has worn the cars out, the drivers not having time or energy to tune them up from day to day. Three days would have been better for the machines; because of this none of today's contests have been so interesting as those of previous days. The 200-mile race was an absolute surprise, being won by Disbrow in the Rainier in 173:48.32, or 7 minutes slower than Chevrolet did the distance on the opening day of the meet in cars of the 230-301 class. In fact, none of the cars in today's events equaled the marks of the first two cars in Tuesday's 200-mile race. It was lamentable to see the poor showing made by machines that in the earlier part of the race had stood up for terrific 65 and 70-mile-an-hour paces, but today fell by the wayside, some due to accidents received earlier in the week. Robertson in the Fiat was a favorite in this race and led for 162 miles when, due to breaking of the driving chain, he was passed by the Rainier and could not do better than win second money. The two Renaults ran third and fourth, and Harroun in the Marmon 32 was fifth, completing the distance, although not timed for the last laps.

Before the 200-mile race five other events were scheduled. The 10-mile stock chassis, 161 to 230 cubic inches, had but Matson and Knipper in Chalmers 30's to start, Matson winning in 10:41.06. In the 10-mile stock chassis, 231 to 300, Chevrolet in the Buick won over Harroun in the Marmon by 15 seconds. Knipper in a Chalmers 30 was third, running in the class above—having sufficient weight for this. The 8-mile free-for-all handicap was won by Aitken in a National, running with 40 seconds handicap on Robertson's Fiat, which was the scratch car. The Rainier with 70 seconds handicap was second, and the Fiat third. The 12-mile stock chassis, 301 to 450, was won easily by Chevrolet in the Buick, with Chalmers 40 second and third and Rainier fourth. The Buick's time was 10:10.56. Dingley was second in 10:28.83 and Lorimer third in 10:37.76. The Rainier's time was 10:45.65. In the 6-mile handicap, stock chassis 231 to 300, Marmon 32, driven by Harroun, was first and Chalmers 30 second and third, Chalmers 30 having 19 seconds handicap. Harroun won by half a wheel over Knipper.

Today's big event, 200-mile race for the Atlanta trophy and $1,000 in gold to the winner, $500 in gold to the second, $300 in gold to the third, and $200 in gold to the fourth, although looked upon as the greatest event in the meet, proved otherwise. The field of eleven starters included two Fiat 60's, two Chalmers 40's, two 35-45 Renaults, a Marmon 32, a Marmon 35, Buick 30, Apperson 50, Rainier 50. Both of the Chalmers, both of the Marmons, and the Buick had to carry weight in order to bring them up to the 2,400 pounds minimum called for in 451 to 600 cubic inch classification, these cars being permitted to run in a higher class if they carried the weight. Ordinarily these

(Continued on page 9.)

SATURDAY'S RACE SUMMARIES

6-MILE STOCK CHASSIS HANDICAP, 231-300 CUBIC INCHES

Marmon	32	Harroun	5:40.83
Buick	..	Chevrolet	...Disqualified
Chalmers	30	Knipper	5:41
Chalmers	30	Matson	5:50.90

Marmon and Buick scratched. Both Chalmers 90 seconds handicapped.

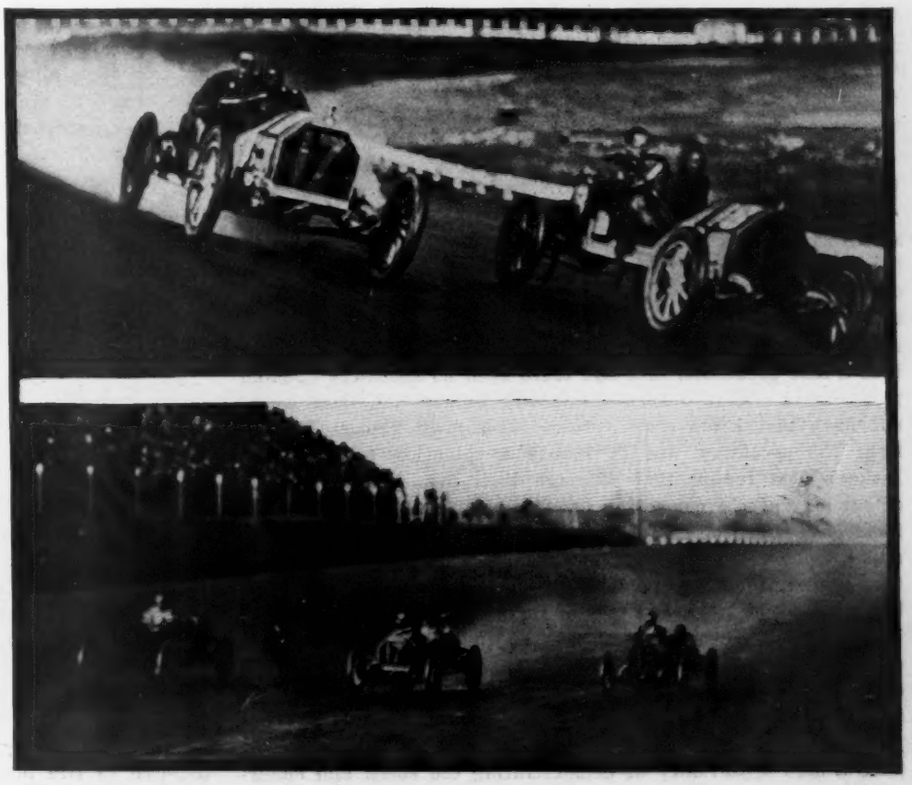
EVENT 8, 200-MILE STOCK CHASSIS, 451-600 CUBIC INCHES

Rainier	50	Disbrow	173:48.32
Fiat	60	Robertson	177:47.05
Renault	45	Basel	178:43.93
Renault	45	L. Basel	193:41.87
Marmon	32	Harroun..Time not taken	
Chalmers	40	Lorimer..Steer. gr. troub.	
Chalmers	40	Dingley...Motor troubles	
Marmon	35	Stillman.Carb'r't'r troub.	
Fiat	60	Strang...Carb'r't'r troub.	
Buick	30	Chevrolet.Rear ax. troub.	
Apperson	50	Harding...Broken spring	

LEADERS' TIME

10	8:10	100	82:35
20	16:27	110	91:14
30	24:53	120	99:38
40	33:01	130	107:43
50	41:02	140	116:14
60	49:15	150	125:00
70	57:22	160	133:44
80	65:34	190	165:02*
90	73:53	200	173:48.32*

* Disbrow's time; other time Robertson's



MATSON AND KNIPPER IN LIVELY BRUSH IN 10-MILE RACE
HARROUN IN MARMON LEADING TWO CHALMERS IN HANDICAP

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Opening the Atlanta Speedway

WITH the successful opening of the Atlanta speedway last week by a 5-day racing program, a second step toward the elimination of the old-time race course as a jousting place for motor cars was taken, and spectators had an opportunity of observing cars perform on a safe course and one in which the real merit of the car can be shown. The fact that over thirty-two different races, varying in length from 2 to 200 miles, were run without a single fatality is prima facie proof that speedway racing can be indulged in without needless sacrifice of life; that thousands can be interested in the car without in anywise endangering themselves; and that cars can perform with most creditable showing as compared with their showings on mile tracks.

THE Atlanta 2-mile speedway marks an epoch in motoring in the south. The speedway has already sold cars in that territory and its work has but begun. During each of the 5 days of the meet more than 20,000 watched the cars, making a grand total of over 100,000. Of this number thousands are not owners of cars, but they are all interested; some were but slightly interested before the beginning of the meet, but have gone home talking car and have, in short, become living advertisements of the motor. This is the kind of missionary work that will produce great results in a comparatively new selling field, such as vast territories of the south offer today. The attention of the people in the south must be turned carward; if these people can be interested in cars, they will disseminate car lore throughout the width and length of the south and those who heretofore have not believed in the feasibility of the car will become convinced. The attention of the people must be held on the car if the car is to continue advancing in popular favor in leaps and bounds as it has done. The Atlanta speedway has already done a great deal in this respect and will do more.

IT is questionable if the criticisms of many makers who attended the national show at Atlanta to the effect that the speedway opening in short killed the show are just. It is true the attendance during the day at the show was small, so slight that several exhibitors did not deem it necessary to have attendants at their booths before the evening, when the crowds attended. During the day the crowds were at the speedway, and it is a safe prediction that had there been no speedway opening there would not have been the crowds because the show would not have pulled the crowds from out-of-town places. In this light the speedway was in reality a salvation to the show. Makers must realize that although their own particular make of car may not be competing in races, yet those races are doing them good. The object of Atlanta in securing a national show and opening a speedway was to boom the car; and it is a fact that scores of cars will be sold as a result of the enthusiasm born at the speedway, and that of these scores of cars many will be makes that were not represented in a single one of the classes in the races. A speedway opening such as Atlanta enjoyed cannot but work a great good for the industry in the south; and it is to be hoped that to the present Indianapolis and Atlanta speedways others will be added so that makers will have a safe opportunity of demonstrating the speed and endurance qualities of the cars on courses where neither the driver, nor the car nor spectators are in anywise endangered.

Stronger Steering Parts Needed

THE fact that there were three cases of broken steering knuckles at the opening of the Atlanta speedway, one at the opening of the Indianapolis speedway and three at the last Brighton Beach 24-hour race is sufficient proof to conclude that in many makes of cars steering parts are not made sufficiently strong and durable for the enormous task imposed upon them. With the unexpected high-speed work many stock cars have been proven capable of this year has come the continual breaking of steering parts. The steering knuckle which has stood up year in and year out under rational driving has shown itself inadequate for the terrific pace that can be maintained on specially-built motordromes. In every one of the many cases above cited the break has been due to crystallization of the metal brought about by excessive vibration. For next year several makes of car will have to be fitted with better steering parts or fatalities will result. This year the magic horseshoe has been with many of the drivers, but manufacturers must not tempt fate any longer. In vital parts of the car—parts into which the human safety factor largely enters—replacement of these before an accident happens would be a commendable precaution. After a car has been subjected to continuous road or track racing these parts should be replaced before they give way. This not only applies to steering parts but to some front and rear axle parts.

THE comfortable body is coming. Makers have gone all around the bush avoiding some real comforts in body design, but are gradually meeting the matter face to face in a genuinely satisfactory manner. One little example of this is the enclosing of the body sides between the front seat and the dash. Heretofore it has been body building art to leave this space entirely open, allowing the winds to whistle through and giving free course to every weather whim. The driver and front-seat passenger apparently thought it was necessary to freeze to be in the hero line. Now this is changing. Abroad the deep door is used between the front seat and the dash so that the driver as well as the front-seat passenger is well hedged in and protected from rains and winds. In not a few cases this has actually added to the appearance of the car. In many cases body builders are slaves to conventionalities and it will be hard for many to get away from the open work at the end of the front-seat footboards, but it is coming, nevertheless, and with it is coming for winter use the heavily-hooded dash—the hood either of a metal continuation or leather boot. Soon the driver will be protected from the weather and the car will have taken one more step in asserting itself as the absolute all-the-year-round vehicle of transportation.

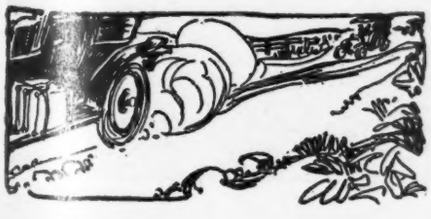
SCARCELY has the low-priced car been looked upon as a permanent part of the industry than the announcement of increase in the prices is made and the buying public is put on the rack wondering what will be the eventual outcome of the present high prices of raw materials. This week one of the biggest builders of medium and low-priced machines has announced an increase of certain models, giving as his reason the increase in rubber and the added costs of steel, hair and other raw materials which enter largely into the make-up of a car. The present increase in tire prices has added from $50 to $60 to the car price and the increase in other materials has done much to add to the cost of production.

ATLANTA'S BIG SHOW HAS SUCCESSFUL RUN

ATLANTA, GA., Nov. 13—Atlanta's first national motor car show came to a close this evening after a successful run of a week in which time thousands of visitors crowded the Auditorium-Armory at nights to view the 1910 models. Compared with the big national shows in Chicago and New York the Atlanta affair was one of small proportions, although the cars were representative of the best in the industry. It would be wrong to style the show a frost in spite of the fact that a score or more of exhibitors designated it as such because during the day the crowds were at the speedway races, yet during the evenings the exhibit spaces were well crowded. Not a few of the parts people packed up their exhibits and moved out on Thursday and Friday. Some of the car exhibits were without salesmen or booth attendants during the entire afternoons. This was natural for reasons already given.

In spite of the small attendance there was evidenced tonight a general feeling of satisfaction in the show, the majority of the exhibitors realizing that although sales were small good missionary work was done. Not a few of the exhibitors established branches or agencies in Atlanta and other southern cities. The Ford company opened an Atlanta branch, as did the Studebaker and Locomobile interests. A score of other concerns opened agencies, so now seventy different makes of cars are represented here. Besides opening agencies and branches, the great work of introducing new agents to the cars has been accomplished. By sending special invitations to every carriage dealer throughout the south and providing passes to the show upward of a thousand dealers registered. Nearly all of these studied the new models, and although many of them are but curbstone agents it is a safe prediction that among them hundreds of cars will be sold during the next few months.

It is debatable whether there ever will be another national show here or not, but whether there is or not the fact remains that the present show has done a wonderful amount of good and has stimulated the interest in the car in the south to an extent never before dreamed of. If the sales made during the show were not up to expectations, the sales that will be made within the next 4 months will greatly swell the volume of business done. The show has given the south an opportunity to see all of the American cars side by side; it has had an opportunity to examine the different models, to compare their merits and shortcomings; and to, in brief, gain a correct conception of the car idea for next year. This alone will install a confidence that will not perish in a twelvemonth.



National Exhibition Declared To Have Done Much Good For Motoring In the Southland

SATURDAY'S ATLANTA RACES

(Continued from page 7.)

cars compete in the 301-450 cubic inch class.

The race looked a Robertson affair from the start. At the end of the first lap Robertson led with Strang in another Fiat second, Chevrolet third, and Marmon, Rainier, Marmon, Chalmers, Apperson and Renaults well bunched. By the end of the third lap Robertson had a good lead on Strang and Chevrolet. In the fourth lap he was 24 seconds ahead of Strang and 28 ahead of Chevrolet. His lead on Dingley was 41, Rainier 45, Marmons 46, Apperson 59, and Renaults 82. It was apparently a Robertson race and he continued to gradually pull away from the entire field. He made the 10 miles in 8:10.94 and at this point had lapped one of the Renaults. Robertson was leading Strang by 22 seconds and Chevrolet by 26 at this point. The Rainier was running fifth 47 seconds back.

Lap by lap Robertson continued gaining with Strang in second place, Chevrolet third. At the end of ten laps, which he made in 16:27.79, he was 32 seconds ahead of Chevrolet, who was second at this point, Strang having had carbureter troubles. Robertson led Strang by 36 seconds, Dingley by 39, Rainier 71, Marmon 72, Lorimer 84 and Apperson 89. By the end of the twelfth lap Robertson had practically lapped the Apperson, Lorimer, and Stillman's Marmon, having lapped earlier than this both of the Renaults and Harroun's Marmon. At the end of 30 miles, made in 24:53.63, Chevrolet was running second, 22 seconds back of the leader; Strang was third, 38 seconds back, and Rainier fourth, 83 seconds to the rear. Stillman's Marmon was fifth at this point, 90 seconds behind the leader.

During the next 10 miles Chevrolet began gaining on Robertson. At the end of the sixteenth lap he was but 17 seconds back, and in the seventeenth lap only 13 seconds from first place. This was the closest, however. From this point he gradually lost, so that at the end of 40 miles he was still second, but 29 seconds back. Strang was now third, 52 seconds behind. At this point Robertson had lapped the entire field excepting Chevrolet and Strang. This order of events continued for the next three laps, when Strang stopped to replace a tire and at 50 miles Chevrolet was 37 seconds behind Robertson, who had lapped all of the other contestants. At the end of 70 miles Chevrolet was running second, 49 seconds back of Robertson, Rainier was third and Stillman's Marmon fourth. At the eightieth mile the Buick dropped out by breaking the torsion tube away from the rear axle. This left Robertson in a clear field, more than a lap ahead of his nearest competitors. By the end of the eighty-sixth mile Strang was second, Rainier third, and Stillman fourth, both two laps back of the leader. The Apperson was running fifth, three laps to the rear, having lost considerable time because of a broken left rear spring. At this time both of the Chalmers 40's were out, Lorimer being eliminated because of an injury to his steering gear from the previous day, when he collided with the Apperson, which had thrown a tire. Shortly after this Stillman's Marmon withdrew. Robertson continued his lead, gaining each lap. The Apperson was finally eliminated because of its spring trouble. Both of the Renaults, although laps behind the leader, were running with the utmost consistency, stopping regularly for oil and gasoline. Harroun's Marmon was performing with the utmost consistency, although laps behind the leader, having lost time replacing spark plugs and getting water on the magneto. With but 38 miles to go and well in the lead one of Robertson's driving chains broke. Although a speedy repair was effected the Rainier had an 8-mile lead before the Fiat was going again, and the distance was too short to cut this down.

Coming Motor Events

NOVEMBER

20—Track meet at New Orleans.
25—Mile-high hill-climb, Redlands, Cal.

DECEMBER

25-Jan. 1—Show at Columbus, O.
28-29—Philadelphia mid-winter reliability run.
31—Opening of Grand Central palace show, New York.

JANUARY

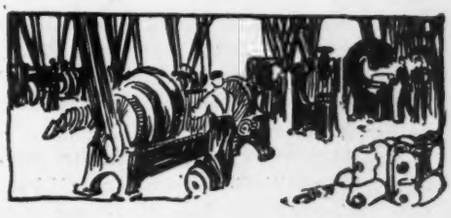
7—Closing of Grand Central palace show, New York.
8-15—Madison Square garden show, New York.
17-24—Philadelphia show.
24-29—Show at Portland, Ore.
24-29—Ninth Annual Detroit Show.
25-31—Detroit show.

FEBRUARY.

4-6—Mardi Gras Track meet, New Orleans.
5-12—N. A. A. M. show, Chicago Coliseum.
14-21—Show at St. Louis, Mo.
14-18—Annual show at Buffalo.
19-26—Show at Newark, N. J.
22-27—Milwaukee Show.
28 to March 5—Show at Kansas City.

MARCH

5-12—Boston show.
21-28—Denver Motor Club show.



SAVANNAHANS OPEN THE TRAIL TO ATLANTA

SAVANNAH, GA., Nov. 12.—On Monday morning thirty cars left Savannah for Atlanta, a distance of more than 300 miles, to open up the first motor highway between these two Georgia cities. The first greeting was received just after passing out of Chatham county. Here the convicts, who have done so much to make good roads in the state of Georgia, lined up on the side of the road and as each car passed gave a loud cheer. Brooklet was where the first stop was made. Here the whole town turned out to welcome the cars. Just before getting into the city a large banner stretched across the road read: "Welcome to Brooklet." After leaving there another sign read, "Burke County Line." The best roads were found here. When the city was reached it was found out that the cars had arrived 2½ hours ahead of schedule.

A Buick driven by Deborde lost two of its front wheels near Waynesboro trying to dodge a wagon and landed in a ditch. New wheels soon arrived from Savannah and the car was able to continue the trip. At Louisville a big dinner was awaiting the contestants, and at Waynesboro luncheon was served, the hospitable people there refusing to accept payment for the food. The tourists were met outside the city by Mayor Whitehead and other officials. At Sandersville the same treatment was given.

Finishing the day's run the big Packard, in which was Mayor Tiedeman, hit a hole and threw the mayor out, breaking a finger on his right hand and wrenching his back. N. H. Van Sicklen at once set the broken finger and the mayor continued the trip. A Cadillac driven by Mosher had engine trouble near Milledgeville and arrived there late.

Jake Dub in an Atlanta Buick was put out of the running by a broken axle near Millen. The White gasoline car of O. B. Martin, of Atlanta, smashed its radiator in the same hole that caused Mayor Tiedeman's injury and was put out for a while. Others who had trouble between Savannah and Milledgeville were F. C. Battey, adjusting brakes and valve-lifter; L. H. Hilton, broke strut rod; N. H. Van Sicklen, broke a transmission shaft; G. I. Taggart, repaired gasoline pipe; Frank Hahne, replaced valve; R. G. Tippins, broke pin in crank handle; L. G. Adkins, put dust in clutch. When Milledgeville, the night stop, was reached, it was found that fifteen of the thirty cars had managed to keep in front and check in with the pilot car.

All Milledgeville turned out Tuesday morning to witness the start from Savannah. The cadets at the military school were drawn up in companies and saluted as the contestants passed.

At 9:15 the cars entered Eatonton, passing under a "Welcome to Eatonton" banner. Some of the best roads the cars passed over were in Newton and the glad hand was received and the sign was: "Newton County Greets You." At Covington the streets were roped off to let the motorists go through to the place prepared for them at the court house, where dinner was served by the committee of young women. While the tourists were partaking of this meal the boys from Emory college gave a few college yells. The girls decorated each car and occupied seats in the parade around the city, after which pictures were taken and the cars set out to complete the 300-mile journey. The stay at Covington was stretched from 40 minutes to 1 hour 45 minutes.

The first car to reach Atlanta was the pilot car, which got there at 4:30 Tuesday afternoon, much ahead of schedule time. The following twenty-six cars out of the thirty cars arrived there soon after the pilot car. Stevens-Duryea, F. C. Battey; Stevens-Duryea, Harvey Granger; Packard, George W. Tiedeman; Chalmers-Detroit, T. A. Bryson; Packard, N. G. Browne; Stevens-Duryea, C. Barrow; White steamer, F. F. Stacer; Stevens-Duryea, A. W. Solomon; White steamer, L. H. Hilton; Buick, J. F. Towels; White steamer, O. B. Martin; Crawford, W. C. Mahoney; Chalmers-Detroit, G. I. Taggart; Maxwell, W. H. Towels; Maxwell, R. Brockett; Cadillac, W. G. Austin; Cadillac, W. T. Debrode; Buick, Frank Hahne; Ford, M. Ed Wilson; Schatch, B. B. Tippins; Buick, T. E. Youmans; Buick, D. B. Everett; E. M. F., Charles Graham; Buick, A. Weil; Maxwell, E. G. Gager.

After the run to Atlanta the technical committee set to work examining the cars, but found out that it was impossible to get through Tuesday night, so gave up the work until the following day. Wednesday it was finished, but it has leaked out that at least two or three cars in each class are tied for the prizes and that it will take a week to decide the winners. Those that have a look in at the first prizes in each class are as follows:

Class A—C. Barrow, Stevens-Duryea; J. F. Toole, Buick; N. G. Browne, Packard.

Class B—W. H. Towles, Maxwell; R. Brockett, Maxwell; W. C. Mahoney, Crawford.

Class C—E. G. Gager, Maxwell; A. Weil, Buick.

SAVANNAH-ATLANTA TOUR—THREE THOUSAND PEOPLE WELCOME MOTORISTS NEAR LOUISVILLE

SAVANNAH-ATLANTA TOUR—GLAD HAND IS EXTENDED AT COVINGTON

GREAT SPEED SHOWN ON ODD-SIZED TRACK

SAN ANTONIO, TEX., Nov. 12—Records at four distances on a ¾-mile track were swept away this afternoon at the new fair grounds loop. Although ¼-mile smaller than the mile track at Dallas, all marks of the latter's recent meet were lowered in time. From the stands, enclosure and hills 20,000 saw the events. Honors on the day went to the Buick entries, and when the Benz opened the real program by winning the 5-mile contest in 4:39⅘, the Darracq driving home second, the crowd realized that this indeed would be a meeting where the victories would be well divided. It is a 4-day session.

Tobin De Hymel beat the field away from the mark with his Stoddard-Dayton in the last race, the 15-mile free-for-all, and held the lead until the fourth lap of the twenty rounds. Then Burman in his Buick swept to the fore, holding it all the way, De Witt driving into second place. But for the mishap of the Jackson in running up on the bank, that car might have made trouble for a couple of the others. The time of 14:22⅘ for this event was once more a state record. Summaries:

Match, 5 miles—Johnson, Hudson, won; L. De Hymel, Ford, failed to finish. Time, 5:00.

Five-mile race—Oldfield, Benz, won; Kirschner, Darracq, second; DeWitt, Buick, third. Time, 4:39 3-5. Burman, Buick, also started.

Ten-mile race—Burman, Buick, won; Clark, Jackson, second; DeWitt, Buick, third. Time, 9:42.

Eight-lap handicap—Grinnen, Buick, won; Clark, Jackson, second; L. De Hymel, Ford, third. Time, 5:63 1-2.

Fifteen miles, free-for-all, stock chassis—Burman, Buick, won; DeWitt, Buick, second; De Hymel, Stoddard-Dayton, third. Time, 14:22 2-5.

Oldfield Smashes Records

San Antonio, Tex., Nov. 16—Special telegram—The second day of the San Antonio races resulted in a successful attempt of Barney Oldfield to lower his own record for the mile on a ¾-mile track. He dropped the mark from :55 to :53⅘, driving his big 120-horsepower Benz. In the challenge race the Darracq driven by Kirschner beat the Burman Buick. The driving of Kirscher, De Hymel and Burman featured the day. Summaries:

Eight laps, free-for-all—Burman, Buick, won; Clark, Jackson, second; DeWitt, Buick, third. Time, 5:53 1-2.

Eight laps, free-for-all—Kirschner, Darracq, won; De Hymel, Stoddard-Dayton, second; Burman, Buick, third. Time, 5:53 1-2.

Twelve laps, special event—De Hymel, Stoddard-Dayton, won; DeWitt, Buick, second; Clark, Jackson, third. Time, 8:42 1-2.

Eight laps, special match race between Buick and Darracq—Kirschner, Darracq, won. Time, 5:55 1-5.

Twenty-five miles for Texas cars and drivers—De Hymel, Stoddard-Dayton, won; Clark, Jackson, second. Time, 25:27 3-5.

De Hymel Protests Buick

San Antonio, Tex., Nov. 16—Special telegram—The third day saw Oldfield fail to lower his mark. A claim of foul was laid at the door of the Buick team when in the last event at 15 miles with the Stoddard of De Hymel holding the pole De Witt on the first turn from the pistol shot drove this car against the bank, breaking its front wheels. The other Buick had got away in front. No decision has been reached yet on this claim. Oldfield's Knox caught fire in the eighth lap of a hard race in which the Jackson, Stoddard, Buick and Knox figured. The Stoddard already had passed the Buick driven by Burman and the latter had dropped out of the race. The flame on the Knox was extinguished. Summaries:

Six laps, special match race—Grinnon, Buick 10, won; Johnson, Chalmers 30, second. Time, 4:46 4-5.

Eight laps, challenge race—De Hymel, Stoddard-Dayton, won; Kirschner, Darracq, second. Time, 5:52.

Twelve laps, stock chassis—De Hymel, Stoddard-Dayton, won; Clark, Jackson, second. Time, 8:40.

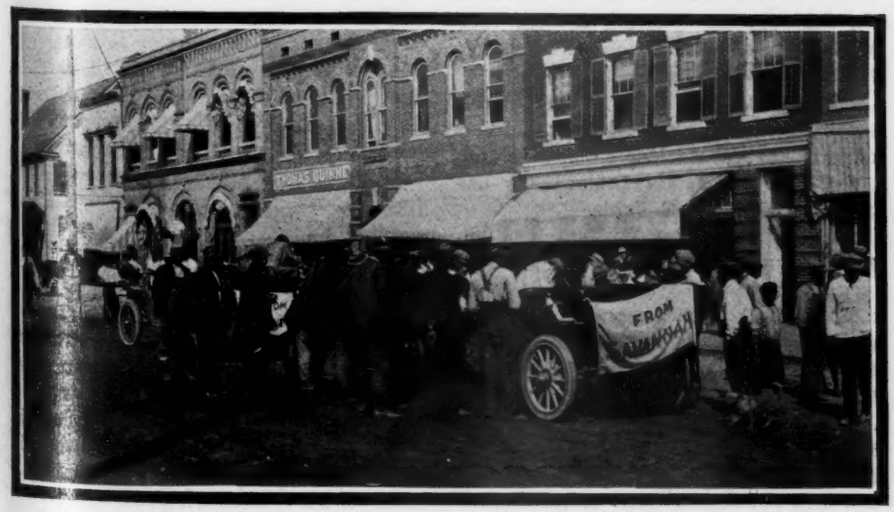
Time trial for track record of :53 3-5, with flying start, held by Oldfield—Oldfield, Benz, won; time, :54. Burman, Buick, second; time, :57 2-5. DeWitt, Buick, third; time, :58 4-5.

Fifteen-mile free-for-all—Burman, Buick, won; Clark, Jackson, second. Time, 14:26 2-5.

Chalmers Wins 6-Hour Race

San Antonio, Tex., Nov. 17—Special telegram—A Chalmers 30, driven by Ben Johnson, was declared the winner of the 6-hour race, that wound up the meeting here this afternoon. The Chalmers was the only one left in the race at the close. A record of two cars wrecked and two put entirely out of the running with no one hurt is the story of the day. De Witt and his Buick were ruled off by Referee E. H. R. Green just before the start of the contest because of the protest of the Alamo Auto Co., as a result of the foul against the Stoddard in the last race of yesterday. This left in the race: Oldfield's Knox six, Burman's Buick, DeHymel's Stoddard, Clark's Jackson and Johnson's Chalmers. The Knox went out with a broken wrist pin after ten laps. Burman collided with the inner bank on a turn. The steering knuckle broke. The car turned over several times, but Burman escaped with a few scratches. At the two hundred and eighty-sixth lap the Stoddard and the Jackson were running even, with equal laps, when the flywheel flew off the former. DeHymel swung to one side and went over the 12-foot bank, carrying the Jackson with him. Both cars were smashed and both retired, leaving the Chalmers alone. As soon as the latter was far enough ahead to be safe it was stopped, at 216 miles. DeHymel and Clark split second and third prizes. The Buick made one tire change in :45.

SAVANNAH-ATLANTA TOUR—BALDWIN COUNTY'S INVITATION TO BEAT IT



SAVANNAH-ATLANTA TOUR—GOOD ROADS MISSIONARIES STOP AT WAYNESBORO

MORE MAKERS OF PARTS DEMAND OF TRADE

DETROIT, MICH., Nov. 12—Men who have been associated with the motor manufacturing industry since its beginning in Detroit predict that the feature of the largest development in the near future is sure to be a radical increase in the number of parts manufacturers. The enlarged plans of all the local manufacturers and the continued demand for cars has the present manufacturers of parts completely swamped with orders, and the general belief exists that there is a fine field at present for makers of various specialties which the motor car manufacturers do not find it profitable to produce, except in those cases where the total output is great.

Already there is a well-defined rumor regarding the establishment of a new concern of large scope, for the purpose of manufacturing steel frames, the Detroit factories being compelled now to go outside the city for a large share of this portion of the cars. The McCord Radiator Co. has relieved the congestion present in this branch of the industry, but a shortage of crankshafts is predicted, on account of the purchase of the Detroit Auto Crank Shaft Co. by the Studebaker-E-M-F. interests. The wheel manufacturers are pretty well up with their orders. The same is the case with the manufacturers of castings of various kinds. Only two of the Detroit factories own their own foundries at present, though two more have foundries under construction. The smaller factories find it unprofitable to maintain foundries of their own, due to the fact that the equipment must necessarily remain idle through about 9 months of the year, unless other work can be secured from outside. The Packard and Ford both have foundries under construction at present, nevertheless.

The past week was featured by the announcement of two important factory changes. The Grabowski Power Wagon Co., now located at 68 Champlain street, has outgrown its quarters and has acquired an ample plot of land on which it will start construction of a new factory building. The location will be announced in a few days. Plans for the factory are now complete and the firm expects to be installed by the middle of June.

The Demotcar Co. has purchased the plant of the Sun Stove Co. at 1305 Bellevue avenue, and is now installing its machinery. The old quarters at 284 Twenty-first street were regarded as merely temporary at the time the company was started and it has been on the watch for a better location ever since.

At the Metzger factory machinery is arriving daily and the extensive operations necessary to transform the building from a trunk factory into a motor car plant are progressing rapidly. William E. Metzger says that a notable feature of the past year has been an advance by the toolmakers in the character of the machinery produced. Machines that were regarded as the acme of perfection a year ago are now virtually out of date. It has taken the tool-makers some time to become cognizant of the needs of the motor manufacturers, but the condition is no longer in evidence. The Metzger factory already has sold the 2,500 cars which it expects to manufacture by June 15. The car will be known as the Everitt Thirty and includes a large number of original features, the work of Designer William Kelly.

The walls are now up at the new factory of the Brush Runabout Co., and President Frank Briscoe expects that the firm will be settled in its new quarters by January 1, leaving the present factory, which it has shared with the Briscoe Mfg. Co., entirely for the use of the latter concern. The new Brush factory is a novelty in more ways than one. The construction is all of the one-story plan, affording excellent light through the whole day. Each department will have a separate building to itself, though all will communicate. The ideas are those of Mr. Briscoe himself, who takes considerable pride in what is unquestionably a marked novelty in factory construction, so far as the motor car industry is concerned.

With the increased capacity which the Brush will have as the result of the new buildings, plans are being laid for the production of 10,000 one-cylinder runabouts for 1910. The firm will manufacture at its own plant every part of the car but the wheels, tires and electrical equipment.

Richard M. Trombley has taken the eastern Michigan territory for the Oakland and has established headquarters at 295 Jefferson avenue, on motor row. He has succeeded in securing an allotment of 200 cars from the Oakland factory at Pontiac, which is running at top speed in a vain endeavor to catch up with its orders.

The first of the 1910 Demotcars came through the factory November 4 and was turned over to W. C. Johnson, who has secured the distributing agency for Ohio. Mr. Johnson, after testing the car thoroughly in Detroit, has left on a demonstrating tour through his territory.

The largest single order announced this season by any of the local manufacturers comes from the Ford Motor Co., which has sold Cecil Gibson, its Indianapolis distributor, 500 model T Fords.

The Cadillac Motor Car Co. has advanced its output to an average of thirty-six cars for the 6 days of the past week and expects to reach a maximum of forty per day through the rest of the delivery season. The company is working on a schedule that will call for the delivery of 10,000 cars this season, but the sales department has been forced to cut off a long list of distributors, most of whom are located in the smaller cities of the United States. This move has been necessary, in order that the demands of the agents in the large cities, and the firm's various branches, may be at least approached during the season that is now under way.

The factory is working night shifts on several departments and is making thorough use of every bit of available floor space. It also has constructed a temporary stock room on the property across Cass avenue from the plant, between the retail branch and the main factory. Rumor has it that a four-story factory building, to be connected with the present plant by an overhead tunnel, is now being planned for erection during the present season. There has been no change in the personnel of the factory management since the sale of the plant to the General Motors Co., W. C. Leland continuing as general manager, with H. M. Leland still present at the factory in an advisory capacity. The sales department is still independent and in the same hands. In general the Cadillac agents remain those who do not handle any of the other cars made by the General Motors Co. and the endeavor is being made to strengthen this position whenever a change is made.

A remarkable instance of Cadillac construction has just come to the factory from its agent at Seattle, Wash. A shipment of cars left the factory September 24 for Mr. Brigham, the Seattle distributor, arriving October 8, having been en route 2 weeks to the day. The first car unloaded was started on compression, having retained in its cylinders the charge of gas which remained from the final effects of the testing process in Detroit.

The Krit Motor Co. has joined the ranks of producing manufacturers in Detroit, its first models having come through the factory during the past week. The car is a novelty in many respects, its four-cylinder motor embodying several original features, while the suspension is also a distinct novelty. The company has its plant located at Leib and Wight streets, in the quarters formerly occupied by the Blomstrom Motor Co., and expects to produce 1,000 cars this year, starting in at the rate of ten a day next week. Charles W. Kanter, William Reed-Hill, W. S. Piggins, C. S. Briggs, C. W. Whitson, Kenneth Crittenden, B. C. Loughlin, A. E. Marentette, Thomas C. Harris, F. J. Armstrong, P. S. Luysten, Willis P. Rand and Hugh Barry are the stockholders. Mr. Crittenden is the designer of the car which has taken its name from his own.

The growing tendency of the Detroit motor car manufacturers to establish branch plants in Canada has been occasioned partly by the fact that the arrangement permits the marketing of a car in the dominion at a lower price but equally on account of the fact that a car manufactured on the Canadian side of the border can be exported to any British possession

virtually free from duty at the port of entrance. In addition to the trade with the British Isles, the condition opens up large possibilities in Australia, British India and many other possessions of King Edward VII. The latest Detroit manufacturers to add Canadian plants to their equipment are the Studebaker E-M-F and the Regal.

The busiest sidetrack in the city of Detroit is the one on the Belt Line railroad which parallels the boulevard, crossing Woodward avenue. This siding, within ½ mile taps the shipping departments of the Cadillac Motor Car Co., the Brush Runabout Co., the Studebaker E-M-F, the Ford Motor Co. and the Regal Motor Car Co. and there always is a string of cars in progress up and down its length. All the factories mentioned are working at the top of their respective capacities and the extensive building operations in progress at several factories have still further emphasized the congestion.

To the average wayfarer who watches the strings of cars being towed out from the factories to the loading platforms, the sight is unique. At various times in the day, particularly the middle stage of the afternoons, it is often possible to count, in 10 minutes' walk, from 100 to 150 motor cars in process of passing from the factories to the consumers.

The guarding of factory secrets has come to be a matter so important in Detroit that one manufacturer has gone to the extreme of placing a padlock on the bonnet of several experimental cars which are now being tested out. Another is known to have placed his 1911 experiments under a bonnet of 1908 vintage. Other ruses have been tried by those who have determined to keep secret the various inventions that are being tested out. It is an axiom in Detroit, where motor experts are met on every corner, that no tester can leave a car for a minute without finding the hood raised on his return. In addition to the regular factories there are always a considerable number of individual inventors who are working models of their patent in cars of standard manufacture. Patent attorneys here are becoming rapidly wealthy, though it is a noteworthy fact that there are almost as many applications for papers on tire substitutes as for other motoring appliances combined.

For 2 weeks, whenever weather conditions favored, three large kites, tandem style, have been hovering over the immense factory of the Packard Motor Car Co., on East boulevard. The neighborhood is too busy generally to pay any attention to such manifestation but the curiously inclined might have ascertained that the Packard publicity department was at the helm of the arrangement, its purpose being not pastime, but the desire to obtain, by means of the kites, a real photograph of the whole Packard plant. The plant has increased in size to such an extent that a photograph by the ordinary means is out of the question.

Columbia, S. C. Promising Car-Distributing Point

Columbia, S. C., Nov. 13—Columbia is a typically promising southern motor car distributing point, with its business in its infancy yet but growing with leaps and bounds and sure to be many times larger in the immediate future. It is in immediate touch with splendid farming sections within 30 to 100 miles, and the far-seeing dealers have for some time realized that the chief hope of the business reposes in the person of the farmer, who is the most practical and otherwise satisfactory purchaser of a machine. Getting him interested means a practical solution of the good roads movement, and the solution of the roads problem means the further extension of the motor car business and both will hasten the general prosperity of the state at large.

Columbia is the home and center of good roads enthusiasm in this section, the citizens generally as well as the motorists taking active part in all practical movements for the improvement of roads. This is the birthplace of the Capital to Capital Highway Association, the project having its inception at a dinner given by the local enthusiasts to R. M. Owen, who was here on a visit. The work the Columbians had done in the pretty stretch of the Two-Notch road by way of opening up the way from here to the winter resort town of Camden attracted Mr. Owen and investigation revealed the feasibility of the route through this section from New York to Atlanta, and the great advantage of this route because it can be used all the year round.

Columbia itself is a type of the hustling new south cities, with its diversified manufacturing and wholesale interests and with low freight rates on account of water competition and the cosmopolitan nature of its population of 35,000 is growing rapidly. Its seven banks have deposits of six and a half millions and clearings of a million and a quarter weekly. It has the largest cotton mill under one roof in this section of the south, the only glass factory south of Baltimore and the only press cloth factory in the south outside of the state of Texas.

A careful survey of the situation brings out the fact that the motor car is just now coming into its own here and elsewhere over the state, and it semes only a matter of getting cars to the agents to make the sale. The farmer is the man who has become the principal factor bringing about this substantial increase in car sales. In the larger cities the trend is toward the higher-priced cars, while in the rural districts the demand is steady for cars ranging around $1,250, although some of the wealthier farmers do demand as much luxury and elegance in a car as the banker or corporation man who is located in a big city.

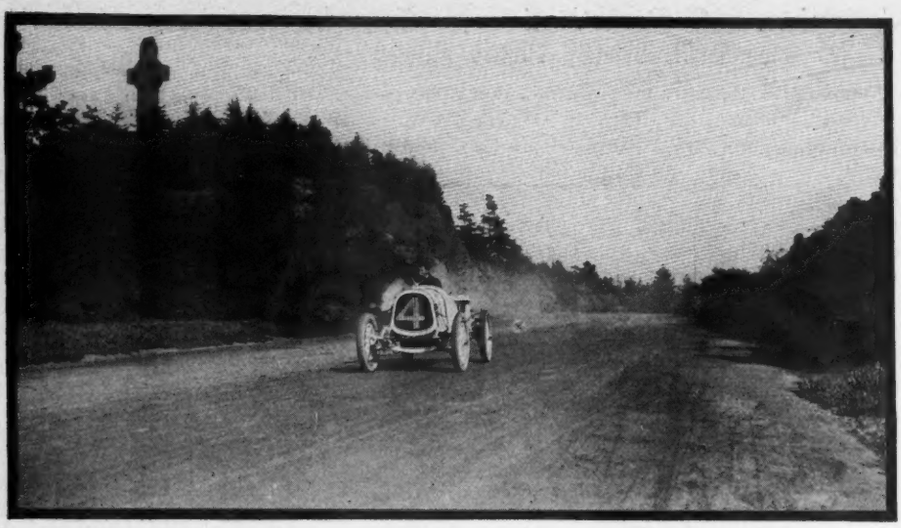
The types of cars that have been the most popular in point of numbers sold have been those manufactured by the Reo, Ford, Buick, Cadillac and Maxwell companies. Still of late there have been a great many of the new 30-horsepower four-cylinder cars of various popular makes coming in in large numbers. At the present time there are about 200 cars in active use in and around the city of Columbia alone, among which there are in the higher-priced division the Packard, White, Chalmers-Detroit, Stoddard-Dayton, Cadillac and Matheson. The other machines in use here range in price from $500 up.

The dealers actively engaged in the sale of cars are: The E. A. Jenkins Motor Co., Gibbes Machinery Co., C. M. Lide, Gregory-Conder Mule Co. and S. B. McMaster. The Jenkins company is one of the pioneers and in addition to the Reo handles the Stoddard-Dayton and White. The Gibbes company, as its name implies, is a large machinery supply house doing business throughout the south, which has added a motor car department and which has met with a large degree of success. This company is distributor for the Chalmers-Detroit and the Maxwell for a large part of the state. It also is local agent for the Studebaker E-M-F and Flanders and the Matheson. C. M. Lide, a contractor and builder, has taken the agency for the Mitchell, which he has handled for the past 3 years. He has now opened up a regular place of business with a garage and repair department. The Gregory-Conder Mule Co. branched into the business from the vehicle and sales stable business and during 2 years have been doing a steadily increasing business. The company controls a large territory for the Brush and Buick. Mr. McMaster has been agent for the Ford in this section for the past 5 years.

So far there are no motor car manufacturing concerns in this state, but it is practically certain that two such enterprises will be started next year. The Rock Hill Buggy Co, at Rock Hill, which for 25 years has done a large business throughout the south, is preparing to branch into the motor car manufacturing on an extensive scale, and what is known as the Seibels-Taylor combination of manufacturing interests in Columbia is about to organize a corporation here for the manufacture of motor car bodies for the trade.

ELMORE PLANT REPORTED SOLD

Columbus, Ohio, Nov. 12—Announcement has been made that the General Motors Co. has purchased the plant of the Elmore company, located at Clyde, Ohio. The concern was one of the largest plants in Ohio, and was recently re-incorporated with a capital of $500,000 to make the transfer more easy. The purchase price is said to be $1,000,000. The plant will be operated as in the past and continue to make two-cycle motor cars.



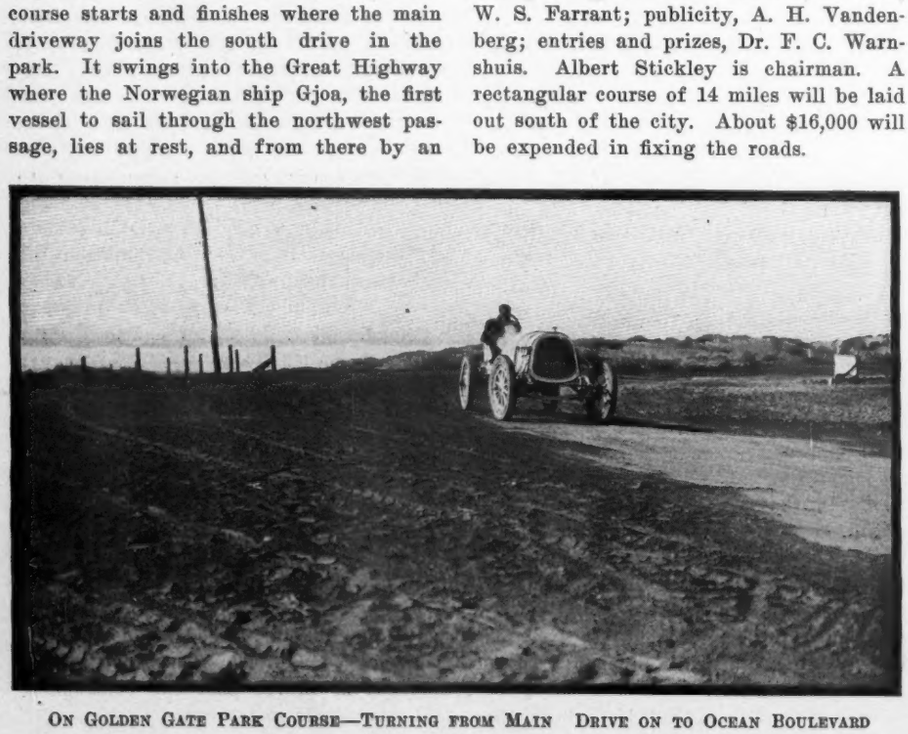
ON GOLDEN GATE PARK COURSE—CROSS COMMEMORATIVE OF SIR FRANCIS DRAKE'S LANDING

Bidding For Next Year's Road Races

SAN FRANCISCO, Cal., Nov. 12—With the Portola road races a brilliant success, the officials of the Automobile Club of California already have begun to plan its renewal every year. It is felt, however, that the races ought to be held in this city, as the festival with which it is connected is distinctly limited to San Francisco. When the plan was broached for holding the race here the objection was made that no suitable course for such a race could be found within the city limits. One has been discovered, though, but it is by no means sure that permission can be secured to use it. The course as proposed goes through the famous Golden Gate park, down the Great Highway, over Sloat boulevard and back into the park by the way of Nineteenth avenue. The race course starts and finishes where the main driveway joins the south drive in the park. It swings into the Great Highway where the Norwegian ship Gjoa, the first vessel to sail through the northwest passage, lies at rest, and from there by an easy double turn into the new Sloat boulevard, which is wide enough for ten cars to run side by side on it. The turn from the Sloat boulevard into Nineteenth avenue is sharp, but it could be banked. From Nineteenth avenue the course plunges up a short incline into the park again. The circuit is over 11 miles.

ROAD RACE FOR MICHIGAN

Grand Rapids, Mich., Nov. 15—The Grand Rapids Automobile Club has selected committees to prepare for the national motor car road race which the club plans to hold next summer. The following committees have been chosen: Roads and guards, M. R. Bissell; funds and privileges, Benjamin S. Hanchett; grand stand and parking, Fred Z. Pantlind; officials, W. S. Farrant; publicity, A. H. Vandenberg; entries and prizes, Dr. F. C. Warnshuis. Albert Stickley is chairman. A rectangular course of 14 miles will be laid out south of the city. About $16,000 will be expended in fixing the roads.



ON GOLDEN GATE PARK COURSE—TURNING FROM MAIN DRIVE ON TO OCEAN BOULEVARD

Quakers Make Race Plans

Philadelphia, Pa., Nov. 15—The Quaker City Motor Club is taking early steps to make its 1910 200-mile Fairmount park stock chassis race, scheduled for October 8, the banner event of next year's list of fixtures. At a preliminary discussion of the matter last week it was practically decided to raise the limit next year and hand out $10,000 in prizes—cash or plate, at the option of the winner—divided up as follows: $5,000 to first, $2,500 to second, $1,500 to third and $1,000 to fourth. Everybody in authority is a unit in advocating the granting of the use of the necessary roads in the park for running the race, and there will be no difficulty, as formerly, in securing the necessary permit, all hands agreeing that as an advertising stunt for the city, nothing in recent years has quite equaled the annual Fairmount park race. The Quakers' contest committee is hard at work preparing for its coming New Year's run, December 29 and 30, which will in all probability go south this year. Early in December the committee will dispatch its scouts to pathfind a suitable route, shortly after which the entry blanks will be ready for distribution. Before the annual banquet, which is scheduled for Thursday, January 6, in the huge ball-room of the Hotel Walton, the 300-mark in membership will be passed. It is expected that at this symposium something definite regarding the proposed club-house will be announced. Meanwhile Chairman Allen Shelden, of the committee having the matter in charge, is quietly at work gathering adherents of his plan, which, as it implies a big increase in dues, is developing slowly. However, he is optimistic enough to believe that he will be successful.

SYCAMORE MOTOR STRONGHOLD

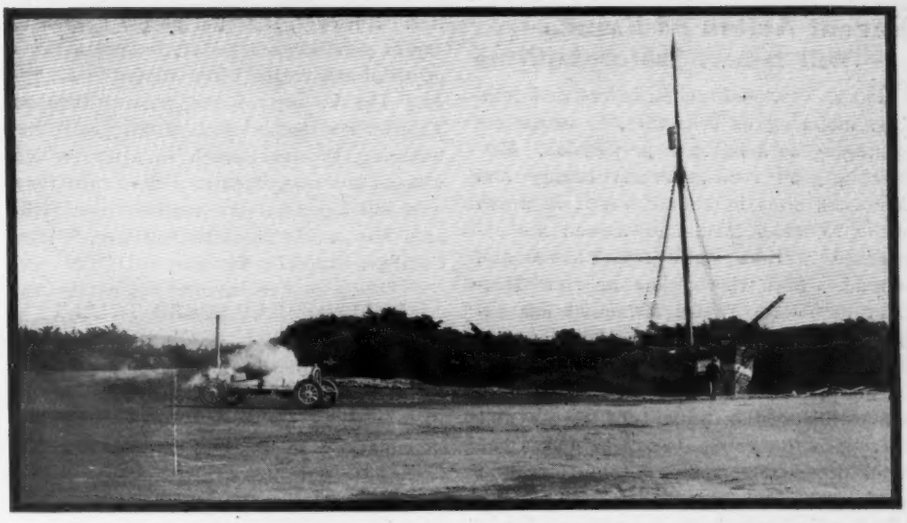
Sycamore, Ill., Nov. 15—In the midst of a rich farming land, the town of Sycamore occupies a strong position, and while trade is the more important occupation of the residents manufacture is making inroads, and among the more prosperous of the industries of the town will be found the Turner Brass Works, maker of a hundred varieties of gasoline torches, some of which are especially for motor car work. The company is turning out a line of brass and aluminum of every description, and the great variety of name plates made, for illustration, is worthy of note. Then the Harroun bumper is made by this company. Sycamore soon will bask in the sunlight of a great new motor car project. The Fidelity Motor Car Works will place before buyers of commercials a line of commercial vehicles. It will be some weeks, perhaps, before this project will be in shape to feature it among the tradesfolk.

Ohio Road Laws Mixed

Toledo, O., Nov. 13—The decision handed down by the supreme court Tuesday will make a tangled mess of the road laws of Ohio, and it will be up to the general assembly to straighten out the mix-up. The decision referred to wiped out all special road supervisors in Ohio and denied the right of county commissioners to any extra compensation over and above their regular salaries for supervising road improvement. All special legislation covering road improvement and maintenance was declared unconstitutional. The court declared invalid all legislation pertaining to the repair of unimproved roads and the maintenance of improved roads, and knocked out all legislative action permitting the division of townships into road districts in Cuyahoga, Belmont, Butler, Carroll, Champaign, Clermont, Clinton, Columbiana, Darke, Delaware, Erie, Franklin, Geauga, Greene, Hamilton, Harrison, Lucas, Montgomery, Muskingum, Ottowa, Preble, Portage, Pickaway, Ross, Stark, Summit, Trumbull, Tuscarawas, Washington, Warren and Wayne counties. The decision was rendered in the case of the auditor and treasurer of Gallia county against the state of Ohio, by which they sought relief from an injunction restraining them from paying the commissioners of Gallia county for services as board of turnpike directors. Under a statute which has been in operation a good many years the care of roads in thirty counties of the state is left to the board of township trustees and in others to the county commissioners. The supreme court holds that, inasmuch as the law is not of uniform operation throughout the entire state, it is not constitutionally valid. The decision has aroused all Ohio motorists.

MILWAUKEE SHOW DATES

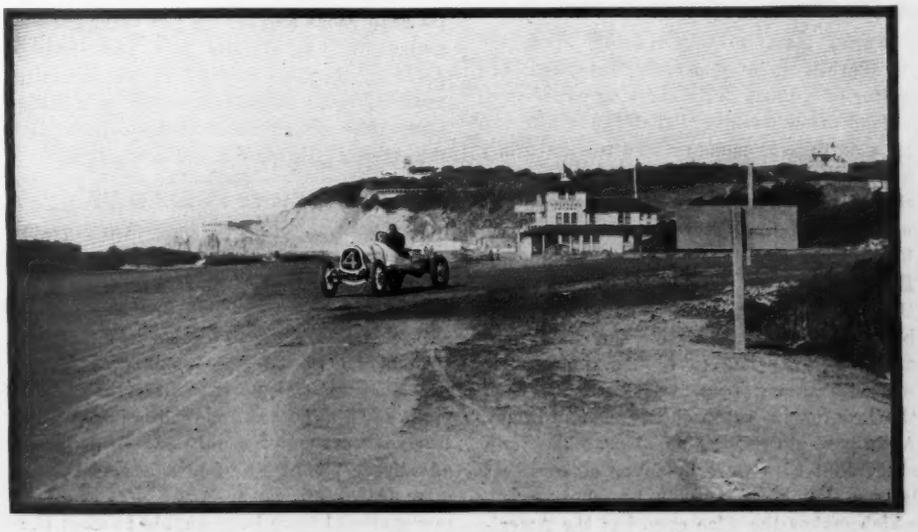
Milwaukee, Wis., Nov. 15—The Milwaukee Automobile Club has definitely decided to hold the second annual Milwaukee motor show from February 22 to 27, inclusive, at the new $500,000 Auditorium. Clarke S. Drake, president of the M. A. C., has been selected as general manager of the show. He already is receiving applications for space. Drawing for reservations will be held on January 26. This year, with the advantage of the Auditorium and added space over last year, a definite scheme can be carried out. There will be separate departments for the exhibition of the various classes of motor vehicles and for accessories, etc. The Auditorium is located at State, Cedar, Fifth and Sixth streets. The Auditorium is surrounded by broad streets, paved with asphalt and is the pride of Milwaukee.



On Golden Gate Park Course—On the Great Highway, a Fine Stretch

Split In Kansas City Trade Ranks

KANSAS CITY, Mo., Nov. 13—There was a split in the Kansas City Motor Dealers' Association tonight at a discussion over the proposed motor car show in the Buick showrooms, Admiral boulevard and McGee street. Four actual resignations were offered and accepted—those of the Ford Motor Co., the Maxwell-Briscoe Motor Car Co., Buick Motor Car Co. and the C. L. Taylor Motor Car Co., agent for the Marmon and Reo. The trouble grew from the arrangement of a show committee slate by dealers who wished to dispossess last year's committee, several of whom solicited reëlection. The members who announced indignantly at last Saturday night's meeting that they opposed a show have been working through the week on a machine to kill the exhibition. The machine evidently failed, for late this afternoon an application for a pro forma decree of incorporation was filed with the circuit court for the Motor Car Trade Association, with the four firms and nine others on the application. This move to start a new dealers' association also resulted in the resignation of H. E. Rooklidge, of the Maxwell-Briscoe Motor Car Co., as president of the old association, and C. C. Meade, of the Ford branch, as vice-president. No new officers have been selected. In the application papers of the new organization H. E. Rooklidge is named as president, C. L. Taylor secretary and E. P. Moriarity treasurer. The show boosters in a big majority in the old association have set next Saturday night as a meeting when all preliminaries of the show will be settled. The temporary show committee will act until changed. R. H. Collins, manager of the Buick branch, one of the dissenting members, said: "One of our main reasons for withdrawing is that we want a manufacturer's show in Kansas City, and believe we can get it. Kansas City is the biggest distributing point without a manufactory in the country, and certainly deserves a 1911 show. By skipping a year we hope that the manufacturers will come across next year."



On Golden Gate Park Course—New Cliff House in Background

Recent Action of France Will Boost Motor Touring

Paris, Nov. 5—France realizes that touring, motoring or otherwise, is worth encouraging as a business proposition. Possessing good roads, natural beauty and historical sites in abundance, it is worth while to make them known and to encourage visitors both from home and abroad. With this object in view Minister of Public Works Millerand has announced his intention of forming a government touring office, of which he will be the president, with a board of directors composed of the leaders of motor and touring associations, representatives of hotel proprietors, railroad companies and financiers. The object of the touring office, which will have government funds and yet be self-sustained, will be to encourage touring by all possible means. Contrary to what might at first be expected, there will be no clashing with the work of the Touring Club of France or the touring department of the Automobile Club of France. On the contrary, it will be possible for these two bodies to extend their field of usefulness, for whereas formerly their effort was limited owing to their inability to interfere with government departments, they now have a special branch of the government to carry through improvement schemes which they may formulate. An example of this is found in an improved system of mileposts which it was desired to adopt in France. The touring department of the Automobile Club of France worked the schemes out. It met with the approval of all, including the government, but could not be put into use owing to the inertia of the particular government department involved. There are many other schemes that have been devised by the Touring Club of France for the benefit of all tourists and road travelers which will be carried to completion now that there is a government department to help.

COMMENTS ON VANDERBILT

Paris, Nov. 4—Commenting upon the Vanderbilt race of a few days ago, the editor of a Paris daily sporting paper says, among other things: "The Vanderbilt cup race of famous memory was run Saturday amid the most pronounced indifference of the French chauffeurs and sportsmen. Not one French car started, and just one European make of car, the ex-glorious Fiat, which had the courage to line up three cars, courage which ought to have been better rewarded, as the Fiat, formerly the favorite in a race, unbeatable with its racing cars, was defeated with the best of its three cars by an ordinary American stock car, an Alco. The two other Fiat cars were not even classed. It is true that the American Locomotive Co., which makes the Alco cars, has the American patents or rights to construct the Berliet. However, it would be too French to cry or yell 'French victory' about a stock or serial car, entirely constructed in America. The victory of the Alco is thus an American victory, which is not at all dishonoring to the French industry, which was no more represented in the race than were the big American concerns like Packard, Winton, Locomobile, Rambler, White, Cadillac, Franklin, Thomas, etc."

WILL REPEAT SPEED TRIALS

Brussels, Nov. 4—One of the feature motoring events to be promoted by the Royal Automobile Club of Belgium in 1910 will be the second annual world's championship meeting, to be held, like this year, on the route de Tervueren. Baron Pierre de Crawhez, chairman of the sports committee of the club, has announced that the cash prizes will aggregate $10,000 and that this year's mistake of promoting the event too late in the season will not be repeated. The club has the assurance from many leading motor car builders who did not take part in the October meeting that next year they will send cars, provided the prizes are worth while. So it will be, inasmuch as it has been practically decided to make the first prize in the kilometer event $2,000, instead of $1,000, as this year. Furthermore, if the world's record is broken there will be an extra cash prize of several hundred dollars. It may be that, besides the kilometer event, a 1-mile championship trial will be added.

WON BY A STODDARD

San Antonio, Tex., Nov. 15—The endurance run of the San Antonio Light and Gazette from this city to Dallas and return by way of Fort Worth, Lampasas and Austin, in which eight cars participated, was won by William Steinhardt's Stoddard-Dayton, which went through with a perfect road score, but which was penalized 2.6 points for a broken shock absorber strap, broken lamp bracket bolt and a lost bolt from the muffler pipe hanger. A Speedwell was second with 1.1 points penalty on its road score and 3.7 on the technical examination. A Hudson was penalized .5 point on the road and 5.3 in the technical examination. Besides these three a Rambler, White, Chalmers, Pennsylvania and the Alamo Heights Special competed.

CAR PRICES FORCED UP

Tarrytown, N. Y., Nov. 15—On November 1 the Maxwell-Briscoe company announced an increase in price on some of its models. The reason given for this increase is the constant advance in price of raw materials. As an example, crude rubber has advanced so that tires today cost from $30 to $60 a set more than formerly. But tires are not the only parts that have advanced; steels, hair and leather all have gone up, solely because the producers of raw material have been unable to meet the demand.

Fate of the Grand Prix Trembles in The Balance

Paris, Nov. 4—A big query must be placed after the grand prix of the Automobile Club of France for the year 1910. The club has announced the race, the conditions are absolute liberty regarding dimensions, horsepower and weight; the distance is 500 miles, and the probable date the first week in July. There is a proviso, however, in the nature of a rule that forty-five engagements must be received by November 30, or no race will be held.

While a fortnight ago it looked as if the forty-five could easily be obtained, for the racing board having voted the speed test is comprised of the leaders of all the leading factories, it now appears that the business managers and board of directors do not share the sporting enthusiasm of the sporting committee. Thus we have the sight of Rene de Knyff, chairman of the racing board, being in favor of a speed test, while the Panhard company, of which he is an important unit, shrugs its paternal shoulders in indifference. Louis Renault, as a member of the racing board, votes for a sporting event, but his factory at Billancourt will not produce a speed monster. Brasier rubs his hands and looks wise when a no-limit rule is proposed, but his board of directors shout an emphatic "No." Altogether, there are eight French firms, comprising Panhard, Darracq, Charron, Renault, Unic, Peugeot, Motobloc and Dietrich, which have come to a common agreement not to race. The foreigners who also will abstain are Mercedes and Minerva. Their reasons for refusing to take part in the A. F. C. sporting event are that this year there was no race and business did not suffer, and there is no reason why they should go to the expense of a speed test next season.

The club has made close inquiry among constructors, with the result that it has obtained a promise of thirty-four cars. No money has been paid, however, and there is always a possibility that some of these will not produce the necessary cash. The willing ones are: De Dion-Bouton, one of the few big firms having never previously taken part in a speed contest; Mors, Rolland-Pilain, Sizaire-Naudin, Gregoire, Delage, and Guillemin; Italy will have Fiat, Germany Benz and probably Opel, Spain Hispano-Suiza, England an Austin team, and either America or England a Mitchell team—for it does not appear to be clear to the club which Mitchell company has made a promise.

The odds are that the race will not be held, but as it only needs eleven more cars to complete the list, it is not safe to prophesy. In any case the race will not have the importance of previous events, for only two leading French firms are entered, the others being voiturette specialists, not having made a previous attempt at a big racer.

St. Louis Merchants Listen To Talk on Good Roads

St. Louis, Nov. 15—With one exception, every firm in the city was represented at the annual banquet of the Manufacturers' and Dealers' Association last Thursday night. Robert E. Lee was toastmaster, and speeches were made by H. B. Krenning, president of the association; Street Commissioner J. C. Travilla; John E. Gorse, and Captain H. L. Wells. Mr. Travilla's address was exceptionally enthusiastically received, owing to the fact that, as street commissioner, he has the authority to enforce many of the things he recommended. He said in part:

"The number of sales made in motor cars and the popularity of motoring depend to a large degree upon the condition of the highways in the city and county. I know of no public question that is attracting so much attention in national, state and city circles as the improvement of our highways. Today we have 294 miles of hard pavements, 8 years ago we had 89 miles; an increase of 230 per cent and representing an expenditure within that period of more than $7,000,000. These improvements have made it possible to reach nearly every section of our city, from any point, at all times during the year. In addition to the mileage of hard pavements, there are about 200 miles of telford and macadam pavements, and 401 miles of unimproved highways.

"The use of the motor car has made it necessary to consider a new type of road construction. The macadam road, bonded together with stone-dust, does not hold up under the action of the rapidly moving motor car. To overcome the disintegration from this cause, engineers are experimenting with oils, tars and asphalts, to reduce the cost of maintenance, to prevent the dust nuisance and make the roadway surface waterproof. A road in Forest park, built during the summer, will furnish some excellent data relative to this class of work. On what is known as the lower Cottage drive nine special treatments of bitumen were used, each section of road being subjected to the same traffic conditions, and upon determining the section that wears best in winter, as well as summer, we will be in a position to make some definite recommendations for future road work. In 1901 there were no motor car licenses; this year 2,800 have been issued."

PROTEST FRENCH LAW

Marseilles, Nov. 3—The people of this big commercial city witnessed a unique demonstration or manifestation, so far as the south of France is concerned, last Friday, when probably more than 400 motor cars, after having gathered at a specified place, started for the city hall and then for the law courts. The cars made up a single-line procession, moved at 6 to 7 miles an hour and made no unnecessary noise with horns or sirens. This big turnout of the Marseilles drivers was a very dignified affair as compared with the noisy demonstration made a few weeks ago by the Paris chauffeurs. Here, as in the Ville Lumiere, the cause or object was the same. It was to protest against the system of police summons and also against the recently enacted speed regulations. About every day fifty or more motorists are being summoned to court, charged with having driven their cars at excess speed. The police do not stop a motorist when they think he has violated the law. They simply take his number and then have a summons issued. In court the motorist hardly ever has the good luck to escape being sentenced to a day or so in jail or fined, as the judge most always takes the word of the policeman. In order to protest against this system the demonstration was held. A delegation from the club and from the drivers was received by the city authorities and by the highest court officials and were promised that the matter would be given consideration.

FRANCE ON ITALIAN OUTLOOK

Paris, Nov. 4—There is much rejoicing in the motor trade of France at the steady and strong decline in the importation of Italian cars. The trade papers, besides publishing the figures, which are official, comment upon the fact in no too friendly way. One journal leads its article with the title, "Italy doesn't sell any more in France." Another declares, "They don't want any more Italian cars in France. The sales of Italian cars have decreased 50 per cent." As a matter of fact, during the first 9 months of 1909, $236,600 worth of Italian cars were imported into France, whereas for the same length of time in 1907 cars worth $439,700 were imported. On the other hand, the exportation of French motor cars to Italy is steadily increasing. In 9 months this year French cars of a total value of $472,660 were exported, which represents an increase of $147,260.

PARTS CONCERNS IN MERGER

Terre Haute, Ind., Nov. 15—A consolidation has been effected of the Muncie Clutch and Gear Co., of Muncie, Ind., and the Wabash Gear Works of this city. The Muncie Clutch and Gear Co. is a new one, only having been in operation some few months, while the Wabash Gear Works has been operating some years. The new management will be largely under the control of A. W. Wagner, president and manager of the Terre Haute Malleable and Mfg. Co., who has become president of the Wabash Gear Works in the reorganization, and H. L. Hooke, formerly of Muncie, Ind., who becomes the secretary. With the greatly increased capacity the company will continue the manufacture of parts, such as transmission gears, progressive and selective control levers.

President Taft's Visit Shows Motoring Strength

Richmond, Va., Nov. 13—William H. Taft visited the city of Richmond the past week. Motorists had a chance to observe that no horses were used in the long parade which was a part of the exercises of the day, except the animals mounted by the police cavalry. When William McKinley visited Richmond in the first days of his presidential career motor cars were not allowed on the principal streets, lest the horses in the parade should be frightened.

Along the line of southern development was the decision announced the past week by the Norfolk and Southern railroad, running from Norfolk into North Carolina, that it had placed an order for an immense motor-engine, that will be used between Norfolk and the Carolina outlet of the road.

Road-building in Virginia continues. For every mile of newly-built roads in the state—upon which a thousand convicts are daily at work—there is an estimated sale of a motor car to use the road. Should this condition continue for a year it is needless to prophesy the future of Virginia roads and the outlook for manufacturers of cars.

Already the state legislators are reading text books on the subject of motor cars. The next legislature will be spicy with the subject. It is comforting to note that in the Virginias and the Carolinas there is little real trouble with the farmers. This is said to be the reverse with northern conditions. As a matter of fact, the southern farmer is the same farmer that farms the world over. He regards every man as a fake until he proves himself the real goods. But the farmer is scratching his head to find an answer to the question as to what use these machines may prove to be fitted for him. Whether the southern farmer likes the good roads that are growing or whether he sees in the future a way to go to and from the city with little trouble to himself, is hard to understand. In fact the farmers of the middle southern states are at present more or less amused and interested. When a few more joy riders have reaped a harvest he probably will snort. In the meantime the motorists are doing the thinking and are preparing legislative enactments for the future.

It is said that there are now on hand more than 100 local orders unfilled by Richmond agents. This is ascertained from a general inquiry among the local dealers. All of the Richmond agents have orders in hand which have been forwarded and which will be filled before the first of the year. It is probable that January 1 will see the sum total of Richmond machines one-fourth greater than was noted at the opening of the fall months. Other sections of the state are said to be ordering at an equal rate.

PREDICTS LOWER PRICES FOR CRUDE RUBBER

WASHINGTON, D. C., Nov. 15—According to the belief of Consul-General George E. Anderson, of Rio Janeiro, there is relief in sight for the manufacturers of tires, and he predicts lower prices for crude rubber, regularity in delivery and a more permanent price range. This, he thinks, will come about through the rubber plantations, which at the present time are producing about 1 ton of rubber to 10 acres of plantation. In three or four seasons it is probable that the plantation supply will reach from 60,000 to 70,000 tons, which is about the present world's supply. These facts are set forth in a communication forwarded by Mr. Anderson to the federal government under date of September 3 and published in the Daily Consular and Trade Reports. It is as follows:

"The exports of Brazilian rubber for the year ending June 30, 1909, were almost exactly the same as those for the year ending June 30, 1907, and yet the value of the exports of Brazilian rubber in the past year was about 120 per cent of the value of the crop in 1906-7 and about 187 per cent of the value of the exports in 1907-8. The entries in Brazil, as measured by the entries at Para, were 38,003 tons in 1906-7, 36,650 tons in 1907-8, and 38,065 tons in 1908-9. Of the shipments for the past year 19,200 tons were for Europe and 19,050 tons for the United States, the stock on hand therefore having been drawn upon to some extent. The visible supply of Para rubber at the beginning of the present season is placed at 3,132 tons, as compared with 4,634 tons at the same time the year before.

"The value of the rubber shipped during the past year measures prices for the product which have been without precedent, the range of prices in the past 2 years being greater than that measured by a similar product in the same time within modern commercial history. In February, 1908, rubber was quoted at about 66 cents per pound. In July, 1909, before the crop season closed, prices were $2.10 per pound. High prices have been charged for the rubber stock since last November, but the prices did not go above $1.50 per pound until the 2 last months of the year. It seems to be generally agreed that prices will remain high during the current season. In the first place, it is understood that certain interests have combined to maintain the price. In a general way, also, with products like rubber, which at present depends more or less upon supplies from forest sources, it requires about a year to readjust supplies to demand after there has been an oversupply and a reaction which led to an undersupply. While there is prospect of high prices for the immediate future, and probably for the current crop season, such high prices will doubtless stimulate production and lead to a reaction the other way, which is likely to bring very low prices another season.

"The chief element in the situation, however, which is likely not only to lead to lower prices, but also is reasonably certain to bring about regularity in supplies, and therefore a more permanent price range, is the plantation rubber supply. The supply of rubber from plantations in the far east during the current year is placed at 4,000 tons by practically all authorities. The actual present acreage in rubber plantations in the east at present is placed at from 520,000 to 600,000 acres. The rubber production from such plantations, as they come into bearing, is placed generally at about 1 ton of rubber to 10 acres of plantation. The immediate supply from such source—a supply to be fully realized in the course of three or four seasons—will unquestionably reach from 60,000 to 70,000 tons, or substantially the equivalent of the present world supply.

"If the demand for rubber increases at the present rate the world ought to be consuming in, say, 1914 about 105,000 tons. What the total world production will be at that time is, of course, problematical, but it looks as though plantations would be producing more than enough to supply the world market. Such supply will be reasonably regular, will be based upon a known cost price, and it is quite evident that there will be no occasion for the immense variations in price which have characterized the rubber market for the past 2 years in a way to not only carry many losses to manufacturers, but also to embarrass them in manufacturing for a market even near at hand.

"In the meanwhile the rubber plantation business has become so very prosperous that its prosperity carries danger with it. There is strong probability that the magnificent dividends paid by rubber plantation companies the past 2 years will lead to too great an extension of acreage. Speculation in companies organized for rubber planting would be particularly dangerous at the present time.

"Moreover, while there has been great success attending rubber planting during the past season, it by no means follows that plantations will have the same success when wild rubber forests now known and only waiting to be developed along modern lines by their owners are opened up in the course of the next 2 or 3 years. The plantation rubber seems to have failed to meet demands in lines of manufacture in which strength is required, and many manufacturers declare that plantation rubber cannot stand against wild rubber except for limited purposes. Too great an extension of plantation investments, therefore, is likely to be disastrous from the standpoint of ability of producers to sell the product. The probability that plantation rubber will soon dominate the rubber market of the world so far as quantity is concerned is commencing to be appreciated in Brazil, but as yet few steps have been taken to avoid possible results in this line. Several of the state executives in annual messages have called the attention of their rubber producers to the situation and its unfavorable possibilities, but practically no action has been taken with a view of combating plantation rubber on a plantation basis. It seems probable that instead of planting rubber groves in Brazil and cultivating the rubber tree as it is cultivated in the far east, the only result of the plantation movement in Brazil will be that new rubber forests will be opened up and that the rubber business will be managed upon a more modern and less wasteful plan. There is no doubt, if the rubber forests of the Acre territory and of the state of Matto Grosso are opened up on a modern business basis; if the middleman is done away with, and if, in short, the wild forests are worked as far as possible in the same way as a plantation is worked, that the rubber business of Brazil will continue to dominate the rubber markets of the world. The wild rubber is of better quality, is from trees of great age and immense bearing capability, and is from a forest already established. This opening up of the Acre and of the state of Matto Grosso is certain to follow railway and other transportation projects now in hand and the extension of the telegraph system of Brazil to the rubber country."

PROGRESS IN NASHVILLE

Nashville, Tenn., Nov. 15—Two new garages will be built in Nashville during the near future by agencies that are now using rented quarters or have their desks and rented space in other garages. Howard, Cregor & Co., who are agents for the Hudson and the Chalmers-Detroit, are now having plans drawn for a large and well-equipped garage. They have options on several sites but have not yet decided positively on their location. E. E. Houk, who has the agency for three cars also is planning to build a garage. E. E. Houk, who already had the agency of the White steamer in Tennessee and the Nashville agency for the Hupmobile, also has become agent for the Stearns. Vogely & Todd, vehicle manufacturers and repairers, have been giving considerable attention the past 2 years to overhauling the bodies of motor cars and now have a big business of that kind. The Vulcan Tire Shop has been established here by the Hudson brothers and is now ready for business. The Nashville Taxicab Co. has been a success from the day it put its vehicles on the streets a few weeks ago,

and will put on more cars as they are needed. The company is agent for the Brush and has just sold one to be used by a rural mail carrier with a route out of Dixon Springs. Extensive interior improvements are being made in the salesrooms and garage.

A. A. A. MEMBERSHIP

New York, Nov. 15—In preparation for the annual meeting of the American Automobile Association, which will be held at the end of November, Secretary Frederick H. Elliott has been compiling a complete list of state associations and clubs affiliated with the national body. The growth in state associations during the past year has been particularly marked, there now being associations in thirty-one states, this including, however, the Hawaiian association. In respect to membership the New York State Association leads with 4,518 members, the Pennsylvania Motor Federation coming next with 3,113 and the Associated Automobile Clubs of New Jersey third with 2,156. Six organizations have a membership of over 1,000—Minnesota, Ohio, southern California, Illinois, Massachusetts and Connecticut. Among the large number of clubs affiliated with the national body the latest statistics show that forty have a membership of over 100. The Automobile Club of Buffalo heads the list with 1,827 members, followed by the New Jersey Automobile and Motor Club with 1,274, while the Automobile Club of Philadelphia, is just short of 1,000. The clubs of Chicago, Minneapolis, Cleveland, Long Island and Rochester each has over 500 members and are growing rapidly in membership.

WILL STAY IN LEXINGTON

Lexington, Ky., Nov. 13—Through efforts of the Commercial Club, the plant of the Lexington Motor Car Co., which was to have been moved to Connersville, Ind., the latter part of December, will remain in this city. E. D. Johnson, a capitalist from Connersville, purchased the controlling stock in the plant about 2 months ago and immediately announced he would take the factory to the Indiana town. After inspecting the plant and invoicing it, the Commercial Club believed the stock to be worth worth more than the Indiana man paid for it, and offered to buy his interests at $115 per $100. The option immediately was taken, and the stock subscription opened to Lexington capital. All of the stock has been sold and the transfer will be made this week. Orders for seventy cars are on file, and every car so far manufactured has been sold before completed. The company, as originally formed, had insufficient capital to operate upon, but the new concern will be provided with a large working capital, and it is expected that Lexington will do well in a car-manufacturing way in the near future, maybe attracting others.

American Tools Popular In Foreign Motor Car Plants

Washington, D. C., Nov. 15—In the following report Special Agent Captain Godfrey L. Carden describes a visit made to a large plant at Turin which turns out motor cars, motor car engines and other machine products:

"The Italian Automobile Works, known as Societa Itala, located in Turin, are at present working about 800 men. At the subsidiary shops in Caluso, where the forging, stamping and pressing work is done, there are more than 200 men employed. The number of machine tools in service is 480. The great majority of these tools are of American origin. The shops cover an area of 322,936 square feet and are modern in character. The attention to detail in the construction department and the accuracy with which material is worked up is perhaps unexcelled in any motor car establishment in Italy. During the past year I found that the wages paid in Italy to good machinists are on the average of 50 centimes—9.7 cents—per hour. In the Itala shops payments are made on both a fixed and a piecework schedule and on a premium basis. A workingday comprises 10 hours. The shops are turning out all their brake hubs on Gisholt turret lathes. One man is finishing up a brake hub complete every 2½ hours. The differential pinion work is being turned out on Potter & Johnston machines, and the gears are being cut on Bilgrams in about 1½ hours. The initial piston work in the Itala shops is handled entirely on lathes. The second part of the work, consisting in lining up, is finished with Landis grinders. This is in marked contrast to the methods in vogue in the Darracq works at Suresnes, France, and in the Dietrich works at Argenteuil, also near Paris. Both of these French works turn down the pistons on the face and flats, center same, and cut the necessary oil grooves, doing the entire work on Potter & Johnston machines. At the Panhard & Levassor works at Paris the practice followed is the same as in the Itala works, namely, to have recourse to lathes for the piston jobs. The proportion of foreign tools—tools other than American—in the Itala works is not large. There are a number of Ludwig Loewe machines and a few English machines of various makes. Ernault, of Paris, is represented, and there are a few Italian machines. I did not, however, observe any Belgian or Swiss machines. Itala is employing at least three Dubose gear cutters with great success.

"Business conditions with the Itala shops are reported as fairly goood, and I understand that the firm's output this year is nearly double that of last year. This output, which is being worked up under normal conditions, is reported to be practically disposed of. The machines turned out comprise the following horsepower: 16 to 20; 20 to 30; 35 to 45; 50 to 65; 60 to 75. In addition, touring chassis are also turned out, as well as chassis for drays and omnibuses of 1,763, 3,306 and 7,716 pounds working load. Cutter and aviation engines are also a product of the Itala firm. The motor is placed forward and comprises four vertical cylinders for the three types, of which the horsepower is 20 to 30, 35 to 45 and 50 to 65, respectively, and six cylinders for the 60 and 75 horsepower. In the Itala engines the transmission is by cardan shaft, with special compensating joints, which system, I understand, it has used from the first for touring cars, even of high power. The clutch is composed of metal disks, which is another feature which Itala has availed of on all cars since 1905. The ignition succeeds by a special system of Itala design at low tension.

"I found many American machine tools in service on the Itala floors. The Hendey lathes are in the majority among all the lathes employed. The Brown & Sharpe tools comprise two No. 2 plain milling machines, two No. 4 of the same type, three No. 2 vertical plain milling machines, one No. 2 universal grinding machine, one No. 13 grinding machine, three gear cutters of the size 26, and one No. 2 surface grinding machine. The Landis grinders comprise two No. 1, one No. 1½, four No. 3 and two No. 23. The Becker-Brainards consist of four No. 5 vertical milling machines and two No. 7 horizontal milling machines. The Cincinnati Milling Machine Co. tools comprise five No. 3 plain millers, three No. 2 universal millers and one No. 1½ universal miller. The Baker Brothers machines consist of three No. 1 tools and one cylinder-boring machine. The Whitney Mfg. Co. is represented by No. 6 type of machine. The Cincinnati Shaper Co. is represented by two shapers, one a 16-inch, the other a 20-inch. I found furnaces in service in this plant from the American Gas Furnace Co., Elizabeth, N. J.

"Among the foreign machine tool makers represented in the Itala shops are the following: From Germany—J. E. Reinecker, lathes, gear cutters and horizontal millers; Ludwig Loewe, vertical and horizontal millers; Deutsch-Niles Werke, large vertical millers; Mayer & Schmidt, cylinder grinder; Biernatzki & Co., gear hob machine; De Fries & Co., tool grinder, and Lorch Schmidt, small precision lathes. From England—Alfred Herbert, small hexagonal turret lathes; Luke & Spencer, tool grinder, and Acme Lathe & Products Co., four spindle automatic machines. From Italy—Dubosc, gear cutters, and Itala, metal-sawing machines, power press, universal grinder for ball bearings, four spindle cylinder-boring machines. From France—H. Ernault, horizontal borers.

NEW IDEAS IN FOREIGN CAR MANUFACTURE

PARIS, Nov. 5—Although there is no show in Paris this winter, French constructors have not altogether neglected to produce new models, or to modify their old ones. Modifications, indeed, will be much more numerous than the creation of new types. It can be taken as a general rule that all the old types remain with but few modifications with a view to simplicity and silence. The new creations are small cars, or rather light cars, varying from 12 to 18 horsepower, designed for town service with closed bodies, or for touring work with open bodies. This class is the only one meeting with any real success in Europe at the present time. The moderate-powered car has its limitations, but its advantages are such that it not only interests present owners, but by reason of its moderate price and economical upkeep attracts those who have not hitherto been interested in motoring.

Darracq has produced a car of this type, which is really a simplification and development of the previous models, the features being a design of such a nature as to reduce the cost of labor and thus make possible a very cheap production. The frame is original, being pressed in its entirety from one piece of steel and having side arms and undershield all in one piece. The side members are of inverted U section, and are indeformable, while the lips on which the engine and gearbox are mounted prevent distortion, and absolute rigidity is secured by a cross member at the foot of the pan and two other members behind it, one being at the bend of the frame and the other at the extreme rear. All riveting is economized with the exception of the three cross members mentioned and the dumb irons. This type of frame is the outcome of a long series of experiments, one of which was the production of a complete frame and a two-seated body in two steel stampings.

Darracq's New Four-Cylinder

The new Darracq engine is a four-cylinder monobloc of 85 by 100 millimetres bore and stroke, rated at 14-16 horsepower. Only slight changes have been made in the design of the engine, one of them being the fitting of an oil float, the spindle of which projects through the crankcase breather and indicates the amount of lubricant in the base of the crank chamber. The gearbox, bolted to the inswept portion of the frame, is of very short overall length, and provides three speeds forward and reverse. Shaft drive is employed with a universal at each end. There is no torsion rod, the three-quarter elliptic springs acting as distance pieces and resisting the reaction of the driving effort. Engine control is by accelerator pedal; the dashboard is perfectly free, not even carrying a sight feed, while the gear change is of the selective type, the levers being steel stampings.

Renault has in hand a four-cylinder model in one casting, this being the first time that cylinders have been produced at this establishment in other than twin castings. Details of the motor have not yet been decided upon, but it is doubtful if any very important changes will be made other than in the method of casting. A new six-cylinder model of only 18 horsepower is being produced, and attention has been paid to the American market by the creation of a 20 horsepower colonial model, with enough clearance for any American roads, and all parts strengthened for high speed work over rough surfaces.

Panhard, after being an advocate for years of separate casting, has brought forth a monobloc engine of 12-14 horsepower. The four cylinders have each a bore and stroke of 3 1/10 by 4 7/10 inches, valves on one side, a crankshaft carried on three bearings, thermo-syphon circulation and high-tension magneto. Piping has been reduced to a minimum by casting the intake and the exhaust manifolds with the cylinders, thus giving the exhaust the advantage of the cooling water and warming up the intake. The high-tension magneto, with fixed sparking point, is alone on the valve side; the leads are very short, for the sparking plugs are carried in the cylinder head immediately over the intake ports. The carbureter, a modified Krebs, is alone on the opposite side of the engine, the only intake piping being a single length passing into the manifold cast with the cylinders within the water jacket. Thermo-syphon cooling, also an innovation for Panhard, is through a special type of gilled tube radiator, with a water tank assuring a head of water and very wide area straight pipes. Lubrication is a combination of drip and forced feed, the flow being to the engine bearings and to the gearbox. The power is transmitted through a cone clutch, a three-speed gearbox and propeller shaft to a rear live axle. An armored-wood torsion rod on the girder principle is used, though the forward halves of the three-quarter elliptic springs are used as radius rods. This is the only armoring about the car, the frame being of the usual pressed steel type.

Bayard Has Radiator on Dash

Bayard-Clement is another large firm having copied the Renault design of a radiator on the dashboard with thermo-syphon water circulation. The models on which this has been produced are two and four-cylinders identical with the exception of the number of cylinders. In each case dimensions are 3 1/10 by 3 7/10 inches bore and stroke, the fours as well as the twos being a single casting. Every effort has been made to produce a simple clean-cut engine. The intake manifold is cast with the cylinders; the water piping and exhaust manifold are separate, but each one is held by a couple of bolts only. Valves are on one side, and magneto in front, in the most accessible position when the radiator is at the back. The carbureter is a model of simplicity, consisting of a float chamber having its top held on by a spring finger, and a vertical nozzle, around which is a straight tube with a bell bottom, the upper end of which screws into the intake manifold. There are no oil pipes on the engine whatever. The lower portion of the crankcase forms an oil tank, from which the lubricant is pumped into a series of troughs for each connecting rod to dip into; the overflow finds its way back to the base of the chamber. On the right hand side of the engine is a combined oil filler and crankcase breather, through the cap of which projects the spindle of a float in the oil chamber, this indicating the amount of oil in the base. There is a three way cock by the side of the filler, which allows more oil to be run into the case or excess drawn off as desired. Paris regulations against smoky exhausts are doubtless responsible for these details.

A three-speed progressive type of gear-set is employed, one of the features of which is a lever passing directly onto the gearshifting mechanism without the use of any intermediary. This is only rendered possible by having the driver's seat on the left instead of the right-hand side. Final drive is by propeller shaft carrying a single universal joint.

Panhard Concentric Valve

In connection with a four-cylinder aeronautical motor, Panhard had produced an interesting type of concentric valve. The motor has four separate steel cylinders with copper jackets having a bore and stroke of 4 3/10 inches and 5½ inches. The cylinders are set so close together that the circulating water ports touch and are made watertight merely by a steel collar lined with rubber. The valve seating is screwed into the cylinder head. It comprises a guide for the concentric valve, the intake port, and two arms to receive the rocker arm bearing. The stem of the exhaust valve is a hollow steel cylinder with the walls cut away to allow admission into the tube. Within the exhaust valve is the intake valve, the seating of which is on the head of the exhaust. Although the concentric valve is not new, being adopted by several French makers of aero engines, most of them make their intake automatic.

On the Panhard, the intake, like the exhaust, is mechanically operated. By means of the vertical push rod and the overhead rocker arm, the exhaust is operated in the usual way, and although the intake is carried down at the same time, it remains seated on the head of the exhaust. When the inner end of the rocker arm is raised, causing the exhaust valve to be brought back to its seat, it has in

turn to depress the intake. The end of the rocker arm is forked, and as it rises this end lifts up a second and shorter rocker arm, pivoted on the disk-shaped end of the exhaust, and at right angles to the main rocker. A suitable spring causes the roller at the end of the push rod to follow the depression on the face of the cam, without which the rocker arm would not rise sufficiently to allow the forked end to fully operate on the intake valve rocker.

The intake manifold runs down the head of the engine, the mixing chamber, with air inlet, being in its center and the carbureter by its side. The combustion chamber is hemispheric, with sparking plugs inserted just below the concentric valves. As the fresh cool gases pass within the cylindrical exhaust valve stem, this latter is always maintained at a reasonable temperature. The motor is rated at 35-45 horsepower. Fully equipped, but without cooling water, its weight is 200 pounds.

ST. LOUIS MAKING ROAD PLANS

St. Louis, Mo., Nov. 15—Although the national good roads convention, which is to meet in St. Louis in 1910, is a long time away, the local club has begun active preparations for the coming event. President Sam D. Capen and Secretary J. Howard Holmes, of the club, are negotiating for headquarters in one of the big hotels where a stenographer will be stationed and where road and touring information will be dispensed to visiting motorists and maps furnished to all who are interested enough to apply. The office is to be opened as soon as details can be completed, and the present intention is to make it permanent. Of course, as its inception was in the fact that the good roads convention is to meet here, the office will be made a sort of headquarters for motorists during that week. Never in the history of motoring in St. Louis has there been manifested such interest in the improvement of roads. The St. Louis Automobile Club is creating a friendly feeling among the citizens living on all highways running into this city. Circulars, it is planned, soon will be printed and mailed to each farmer or other property owner along these roads, urging the necessity of complying with the laws of the state as well as going beyond the strict letter of the statutes in keeping the roads cleared. Each citizen also will be asked to use his influence upon the road overseers to see that they do their duty.

HARRISBURG PLANS ECONOMY RUN

Philadelphia, Pa., Nov. 15—November 27, the Motor Club of Harrisburg will run an economy contest over a course which will touch all the larger towns roundabout that city. While no rules have as yet been announced, Secretary J. Clyde Myton intimates that awards will be made on the basis of cost per mile per passenger for fuel and lubricating oil consumed on the journey.

France Now Modifying Its National Traffic Laws

Paris, Nov. 3—In addition to the international motor regulations which have recently been studied in Paris, France is interested in bringing up to date her national laws governing traffic. The present set of regulations was drawn up in 1851, at a time, naturally, when motor cars were unknown, and when traffic was not as intense as today. Admittedly the laws need modernizing, and in order that this work should be done properly Louis Barthou, then minister of public works, appointed a commission of experts, representing the motor industry, road-makers, horse owners, cyclists, and the ministries of justice and public works, to draw up an ideal road code, which should be presented to the minister of public works, and by him brought before the government for presentation to parliament.

The experts met last June, then again this month. In the meantime they had gathered together, in a classified form, all the road regulations of all countries. From this mass of regulations, some good, some bad and many indifferent, the experts will pick out the best and with them create an ideal set of laws governing traffic. Although the motorists occupy a prominent position on the commission, the intention is to study the question from an even broader standpoint than that of motorists. The interest of all parties has to be considered, from the standpoint of the foot passenger, the horse owner, the motorist and dwellers along the roadside. In addition the road-builder will be consulted.

The commission is now in two sections, one of them studying the road itself, and dealing principally with the weights of vehicles that shall be allowed on the road, the type of wheels they shall employ, etc. The other section has the larger problem of creating laws for the regulation of traffic. It is very probable that the new code will adopt a free speed limit. At present official France is in contradiction with itself, for it has a maximum speed law of 18 miles an hour, which if rigorously applied would put every French motorist into prison. Practically no limit is imposed, but there is always danger of an attacking party taking advantage of the legal limitation. What will doubtless be done will be to make the law as reasonable as its present application, which is no limit, but every man responsible for the accidents he may cause. This will also put a check on the mayors of little villages, who at present have the power to fix local speed limits varying from a walking pace to 10 miles an hour —but rarely have the courage to enforce them.

Lights on all vehicles will be a strong point of the new code. Where the maximum speed is less than 18 miles an hour, only one light will be required, but it must be of such a nature and placed in such a position that it will be seen as clearly from behind as from the front. Cattle and sheep driven on the road at night will have to show a light in a similar way, and it is more than probable that the same regulation will apply to troops and any considerable body of men marching together.

Another proposed improvement is that all cases of dispute between any stranger and a native shall not be tried before the local courts, but in the chief town of the department, corresponding to the capital of the state in America. Almost invariably in a dispute between a motorist and another person the motorist is a stranger to the district, or probably a foreigner, while his opponent is a native. The local judge has such strong local attachments that it is rare indeed that the stranger receives fair treatment. It is but natural that in case of a doubt the local judge should decide in favor of his townsman rather than of a stranger he never has seen and may never see again. At times, too, the motor car brings exceedingly important cases before exceedingly unimportant courts, the judge of which has not the experience necessary to arrive at a just decision. The transferrence of all such cases to the capital town would not cause much inconvenience to the natives and would assure fairer treatment to the motorist.

Indications are that the new code will become law at an early date. Motor touring in France has become so widespread, traffic is so great on all the main highways that it is impossible to continue with a set of regulations brought into existence over 40 years ago. What is needed is a set of regulations that will clearly define the duties and responsibilities of all users, that will make it impossible for the dare-devil chauffeur to endanger the lives of others, and equally impossible for the farm laborer to sleep in the bottom of his cart while his team wanders along at its sweet will. The highway has come to life and must have rules and regulations as clearly defined as those of the railway—and as rigorously enforced.

TAPS THE ROYAL GORGE

Denver, Colo., Nov. 12—On petition of the Cañon City Merchants' Association, of Cañon City, Colo., the county commissioners have adopted a resolution authorizing the construction of a public highway to the top of Royal Gorge, to be maintained at public expense. It will be built with convict labor under the provisions of the Lewis law, passed in 1906, and formal requisition will be made upon the penitentiary warden for the necessary men as soon as the survey is made and the engineering details settled. Although the top of the Royal Gorge affords one of the most rugged and magnificent mountain scenes in Colorado, comparatively few people go there, owing to the roughness of the road, which, in many places, is little better than a trail. The proposed road will at no point have a grade of more than 6 per cent. Its construction will add interest and importance to the Colorado Springs-Cañon City highway, now under a legislative appropriation.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

CRITICIZES TWO-CYCLE DESIGN

MILWAUKEE, WIS.—Editor Motor Age—Taking the liberty to criticise the answer given E. A. Frank, Princeton, Ill., in Motor Age issue November 11, under the head "Three-Port Engine Power," I want to say that Mr. Frank never will get 25 horsepower out of his present design as his ports given in his inquiry are wrong. I believe his ports are entirely too small. I would much prefer a 1½-inch intake and a 2-inch exhaust. The intake port should be ⅞-inch high and about 105 degrees circumferential length. The exhaust port should be not less than ⅞-inch high and the same circumferential length as the intake port. The transfer or third port should be the same as the intake port or even a little higher, say ⅝-inch, ⅜-inch being entirely too short a time opening. All ports should have two bridges ⅜-inch wide. Always have the ports large enough, get the gas in and get it out quickly is a good formula. Then the motor should show about 25 horsepower, as Motor Age says, but so much depends on design, details, compression, which Mr. Frank does not give; type of carbureter, ignition and workmanship. So if Mr. Frank gets about 18 or 20 horsepower he has an A1 engine. Lubricating oil mixed with gasoline is, as Motor Age states, largely used on two-cycle marine engines, but those engines never run over 800 or 900 revolutions per minute, 500 revolutions being the general used speed. A motor car engine which has to run 1,500 revolutions per minute and more will show that this method of lubricating is not the best, but of course, it is the simplest. Further, I would like to call attention to a line in the "Study of a Two-Cycle Car Design," page 30, column 1, line 12, Motor Age issue November 11, which reads "the transfer ports are much restricted." It should read, "The transfer pipes on the transfer passages are much restricted."—Otto W. Brown, M. E.

CHANGING TO THERMO-SYPHON

Michigan City, Ind.—Editor Motor Age—I am driving a two-cylinder car with the engine under the body, and am having much trouble with the chain on the pump. I know this can be remedied, but will Motor Age inform me if this can be changed into a thermo-syphon cooling system, and how? Would I have to dispose of the water tank or have it radiate through the tank.—H. C. Wickemyer.

It would be very difficult for you to fit thermo-syphon cooling because the jackets in the cylinder walls are not of sufficient size, the radiator capacity is not large enough and your water connection pipes would have to be larger. The only feature that would seem at all feasible for fitting thermo-syphon is the fact that the motor is sufficiently low with reference to the radiator, which is only one of many factors, however, entering into the situation. Undoubtedly the trouble with the chain driving the water pump is that it stretches and jumps teeth. This can only be avoided by fitting new chains.

NAMES THE CAMERON

Le Mars, Iowa—Editor Motor Age—In Motor Age, issue November 4, a subscriber asked for the names of cars selling under $1,000 having a 3-speed forward gear. The Cameron Car Co., Beverly, Mass., has made such a car for about 3 years, using Cameron's patent transmission, mounted on the rear axle, direct on all speeds, coasting with no gears in mesh and changing gears, with cogs full-faced in place of sliding in edgeways, and making no noise changing.—C. L. Von Berg.

PROBABLY CARBURETER TROUBLE

Chicago—Editor Motor Age—I have a two-cylinder horizontal engine, the cylinders being bored and tapped for two spark plug openings—one on the side and the other on the top. Will Motor Age advise me if I would gain by using two plugs in each cylinder, and if so how should the wiring from the coil be done° I am having considerable trouble in getting a uniform speed from both cylinders. Would I gain by using a coil with master vibrator? —S. F. M.

There is nothing to be gained by using two spark plugs. Lack of uniformity of power between the two cylinders is probably due to carbureter trouble to some extent; maybe there is an unbalanced condition in the respective manifolds or a leak in one of them; see that the spark is timed for the respective cylinders alike; have the compression the same in both cylinders.

SOME LEFT OUT

Louisville, Ky.—Editor Motor Age—In Motor Age, issue November 4, page 35, we find a write up on the motoring situation in Louisville, Lexington and other cities in Kentucky. In looking over the part that describes Louisville, We find where Motor Age has left out a few firms which are doing business here with a little bit of success. Not that we care about being left out ourselves, or anything like that, but we think it no more than fair to all those concerned that every one be mentioned in such a story. We are in the business to stay and are handling Reo and Haynes cars for the state of Kentucky and southern Indiana. Another firm of quite a bit of consequence which was left out is the Miles Auto Co., which now has a garage which will store twenty cars and which is putting up a new place which will cost from $15,000 to $20,000, in which it will be able to take care of sixty or more cars. The company handles the Packard cars and trucks and the Woods electric, and it has sold quite a few cars since it has been in business. We have only sold about 150 cars in our 2 years of business, but no other firm has sold very many more. We are getting plans ready now to build a new garage for our own use in which we will be able to take care of about fifty or seventy-five cars. Our present place is very limited, but is in demand. On page 36 of the same issue, in that part describing Lexington, Ky., Motor Age mentioned the Blue Grass Auto Co. as handling the Stoddard-Dayton and Velie. It, however, handles the Reo, too, and has been doing so for 2 years, and this past year it sold fourteen. We have dealing with us the following agents for Reo cars, all of which have sold two or three cars at the least, and most all of them quite a few more: W. E. Shelton, Mayfield, Ky.; Auto Co., Middlesboro, Ky.; J. T. Coy, Richmond, Ky., and vicinity; Paul Strother, Mt. Sterling; N. G. Marks, Springfield, Ky.; Fred A. Clark, Fairfield and Bardstown; J. M. Roddy, Frankfort, Ky.; E. O. Tolle, Eminence, Ky.; L. G. Basket, Shelbyville, Ky.; J. T. Dawson, Owensboro, Ky., and W. D. Sowle, New Albany, Ind.—Reimers Motor Car Co.

CAUSE OF SHAFOR'S MISSING

Dowagiac, Mich.—Editor Motor Age—I do not agree with Motor Age's solution of E. D. Shafor's trouble which appeared in these columns November 4 issue. If Mr. Shafor will replace the intake valve stem on the rear cylinder with one that fits the guide, he will find that the missing is stopped and will be surprised at the increase of power. This missing may also be stopped by turning the set screw to hold the throttle part way open, then retard the spark a little or the engine will run too fast while the car is standing still. The opening in the air valve or throttle is surprisingly small, about the size of a lead pencil when the engine is running idle. Undoubtedly the stem, having been used since 1905, is worn about 1/32-inch all the way around, which would leave a space

about 1/16-inch or more when the stem is on one side of the guide, consequently he gets more raw air than mixture with the throttle closed. When the throttle is open and load applied he gets too rich a mixture, causing the engine to miss until under good motion, when the cylinder apparently works all right, but with only about two-thirds the power it would have if the raw air was shut off.—Will I. Gilbert.

CAUSE OF ENGINE VIBRATION

Belding, Mich.—Editor Motor Age—I have a two-cylinder Pope-Toledo, with a vertical engine under the hood, which vibrates the case quite badly on high or low speed. Can Motor Age, through the Readers' Clearing House, tell me what is the cause of this vibration?—C. E. W.

Primarily in a vertical, two-cylinder motor the secondary moments are not satisfied, and the extent of the unbalanced condition is a variable depending upon the speed. When, on low speed, the vibrations become excessive, it is because the speed of the motor increases under light load, the lever advantage being in favor of the motor when the system is on low gear. In high speed, vibration will follow, due to overloading, it being the case that the twisting moment—torque—of the motor is far from continuous, and increasing the flywheel effect, which is a matter of adding to the weight of the same, is the most likely way to approximate the best result. In the absence of any changes to the motor, all that can be done is to keep the motor from racing by maintaining a proper relation of the spark and throttle, especially when the load is relieved, which will be the condition obtaining when the low gear is introduced.

ERROR IN CAR EXPENSE

Milwaukee, Wis.—Editor Motor Age.—In my Readers' Clearing House communication November 11 issue, under the heading of "Itemizes his Expenses," I notice you have footed the total amounts, giving the reader the impression that it cost $566.02 per year to maintain a one-cylinder runabout. This is an error, as I already had included the footing in the first item at top of the list—total cost of maintenance from November 1, 1908, to November 1, 1909, $282.31—but made the mistake in putting this at the top instead of at the bottom of the list. My total cost, therefore, of maintaining a one-cylinder runabout for one year is $282.31, not $566.02, as would appear at first glance.—City salesman.

CARS FOR COMMERCIAL MEN

San Angelo, Tex.—Editor Motor Age—It may be of some interest to readers of Motor Age to know one of the uses of the motor car in west Texas, where the railroads are very scarce. Twenty-nine merchants of this town got together and with the aid of eight motor cars attempted to cover their trade territory. They carried all kinds of souvenirs and advertising matter. Each town gave the excursionists a royal reception in the way of banquets, barbecues and dances. They vied with each other to show the men the best time. The eight cars—four Buicks, one Mason, one Chalmers, one Cadillac and one Maxwell—made a very good showing. They covered 488 miles, taking in fourteen towns. This party left San Angelo at 8 o'clock Tuesday morning, and returned Saturday night. The Maxwell broke an axle, but this did not delay the party, for the other machines took its passengers to the next town. By the next morning the Maxwell was repaired and on hand ready to continue the trip. The merchants are well pleased with the results of this trip and it is their intention to organize another such trip next year. It proved to be a great advertisement.—Henry Ragsdale.

GARDNER ESTIMATES HORSEPOWER

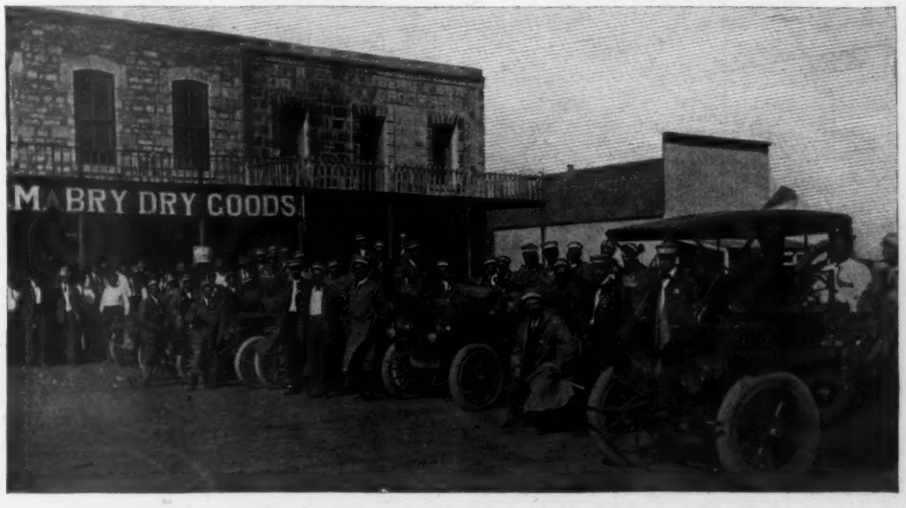
Dowagiac, Mich.—Editor Motor Age—As the season is at hand in which buyers of motor cars begin to investigate the merits of various machines, I would like to call attention to a few items that might be of interest and assistance to those who are approaching the subject for the first time. In selecting a car for city use or on smooth level roads, the points I mention would not apply, since almost any modern engine will drive a car over good going with perfect satisfaction to the user, but for poor roads and general country touring, there are four factors that need to be considered in estimating the general efficiency of the machine. In ascertaining the relative efficiency of various cars for doing hard work, I have adopted a formula which takes into consideration weight, horsepower, gear ratio and wheel diameter. It is well known that the greater the horsepower, and the larger the figures representing the gear ratio, the easier the work will be done, so these become multiplying factors. The greater the weight and the larger the wheel diameter, the less will be the efficiency so these become dividing factors. Thus is evolved the following formula: Letting H. P. equal the given horsepower and G. R. the given gear ratio

$$\frac{\text{H. P.} \times \text{G. R.}}{\text{Weight} \times \text{Diameter}}$$

In using this formula it is necessary to get as near the actual weight of the car as possible, which is a difficult thing to do without buying the car, since nine out of ten of the dealers and very few of the makers will tell what the car really weighs. In obtaining the horsepower, salesmen's statements should be largely disregarded for purposes of comparison and the A. L. A. N. formula is about as good as can be adopted for this purpose. To use this formula, a table is necessary which takes into consideration the piston stroke and is very easily worked. The formula is based on a piston speed of 1,000 feet per minute, so the various speeds necessary to obtain the rates horsepower are easily computed and are as follows:

6 Cyl.	4 Cyl.	B. & S.	Rev.
37	25	4	1,500
40	27	4 1/8	1,454
42	28	4 1/4	1,411
45	30	4 3/8	1,371
48	32	4 1/2	1,333
51	34	4 5/8	1,297
54	36	4 3/4	1,263
57	38	4 7/8	1,230
60	40	5	1,200
63	42	5 1/8	1,170
66	44	5 1/4	1,142
69	46	5 3/8	1,116
72	48	5 1/2	1,090

Thus it will be seen that if a motor has cylinders 4½ by 4½ it will develop 32 horsepower for a four-cylinder motor or 48 horse power with six cylinders at 1,333 revolutions per minute. If the motor has 4½-inch bore and stroke of 4¾ inches, it will be rated at 32 horsepower, but will have to make only 1,263 revolutions per minute to do it. In this way, various motors can be compared easily and at a glance without going through complicated mathematics or depending altogether on salesmen's statements. Of course it is well known that actual horsepower is not entirely a matter of dimensions, but dimensions must be used as a foundation and then the various features, such as valve sizes, design of carbureter, cooling efficiency, etc., given their proper consideration. For my own use, I have condensed



TEXAS TRADESMEN MAKING LONG BUSINESS TRIP IN MOTOR CARS

this table onto the back of an ordinary visiting card which I always carry with me and then I never am at a loss to estimate somewhere near the rating of any given motor. I find it very satisfactory. In using the efficiency formula for comparing various cars, the car which gives the highest fraction will be found to work most easily on sand and hills and go through the country with the greatest comfort and the least changing of gears, and unless unusual high speed is desired will give the greatest amount of satisfaction, other things being equal.—A. B. Gardner.

THEORY OF STEERING KNUCKLES

San Antonio, Texas—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me if the arms on the steering knuckles are so adjusted that if extended they would intersect the rear axle at the center? If this is true, what is the reason for it?—B. M.

Ackerman, in the eighteenth century, discovered that a vehicle, on a curve, to perform properly, had to be provided with such tie rods for the front wheels as would enable them, respectively, to roll on independent orbits, not to a common radius, but from a common axis. Fig. 1 is offered to illustrate the point to be made, in which it is shown that true rolling motion of all the wheels will be realized when the car is going straight ahead. When the wheels are canted, as in negotiating a curve, if the tie rod arms are parallel, since they are connected by a rigid tie rod in practice, the radius O A will be the inner wheel radius C D, of turning, but the outer wheel will cant to the same angle, and the arc S S′ will be described, which arc is not parallel to the arc C C′, and the wheels will not roll perfectly; in fact, the outer wheel will drag.

But if the tie rod arms are to the rear of the axle and converging, in the manner as will be presently shown, it is then that the two front wheels will roll on parallel orbits to a common center, O, Fig. 1, and the inner wheel will have a radius O A, while the outer wheel will have a radius of turning O B. As the figure shows, the arc R R′ is parallel to the arc of the circle C C′, under which conditions the wheels will perform their functions without dragging, and the tires will avoid damage in the process.

The Ackerman-Jeantaud system of steering, a definite advance over the original idea of Ackerman, is illustrated in Fig. 2, in which the arms O L and O′ L of the tie-rod L L converge to the rear, and are parallel to, and cut by, the line A L O on the left side, and A L O′ on the right side. The point A is at the center of the rear axle. In turning, the point A moves out on the rear axle plane to the point A′, with the result that the turning radius of the car becomes that of the radius A′ O′ for the inner wheel, and the radius of turning of the outer wheel becomes A′ O, so that the two canting wheels turn on parallel orbits around a common axis, A′. Obviously, the arms L O and L O′, instead of converging to the rear, would serve just as well if they were made to diverge to the front, provided only they be designed to remain in the same plane as a projection of the line A O for L O and A O′ for L O′. This is not always possible in practice because the spokes of the road wheels are in the way.

THE VALVE-IN-THE-HEAD MOTORS

Dubuque, Ia.—Editor Motor Age—Will Motor Age through the Readers' Clearing House answer the following questions: 1—Why do many makers, especially foreign, equip their racers with the valves in the head when their stock chassis have the valves on both or one side of the motor? 2—If the valve-in-the-head motor develops more power, as is claimed for it, why don't those makers equip their stock chassis with the same type of motor? 3—Is the wear greater in this type of motor than in the ordinary type with the valves on the opposite sides? 4—Will the valve-in-the-head motor stand up in severe endurance tests as well as the motor with the valves on opposite sides? 5—What type of valves has the Fiat Cyclone, Oldfield's Benz, the Fiat that Nazzaro drove 2 miles a minute on the Brooklands track, and the eight-cylinder Darracq that made good time at Ormond?—O. S.

Valves in the head have the advantage of reducing the flame-swept surface and as this surface is reduced the cooling problem is reduced also. In stock cars, especially with motors of less power, the cooling problem is not so acute, and designers who do not care to cope with possibilities for noise prefer not to place the valves in the head and use rocker-arms on the top of the cylinders. The makers who adopt this construction, having in mind accessibility, good conditions of cooling, and high thermal efficiency, eliminate noise by doing good work. The life of a motor is not dependent upon the position of the valves at all. If a motor is properly designed, using superior materials throughout, and if the work done is proper, the life of the motor will reflect these qualities. If the reverse is true, it matters not at all as to the location of the valves; the life of the motor will be shortened accordingly. The Fiat Cyclone has intake and exhaust valves in the cylinder heads. In Oldfield's Benz the valves are in the cylinder heads. The Nazzaro Fiat uses two exhaust valves in each cylinder and one intake. All three are in the cylinder head and the cylinders are cast in pairs. The eight-cylinder Darracq used intake and exhaust valves in the cylinder heads.

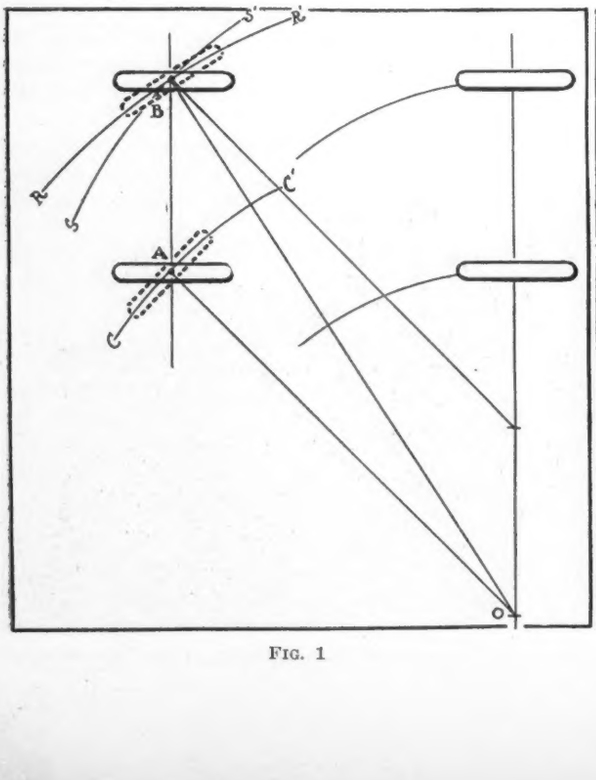


FIG. 1

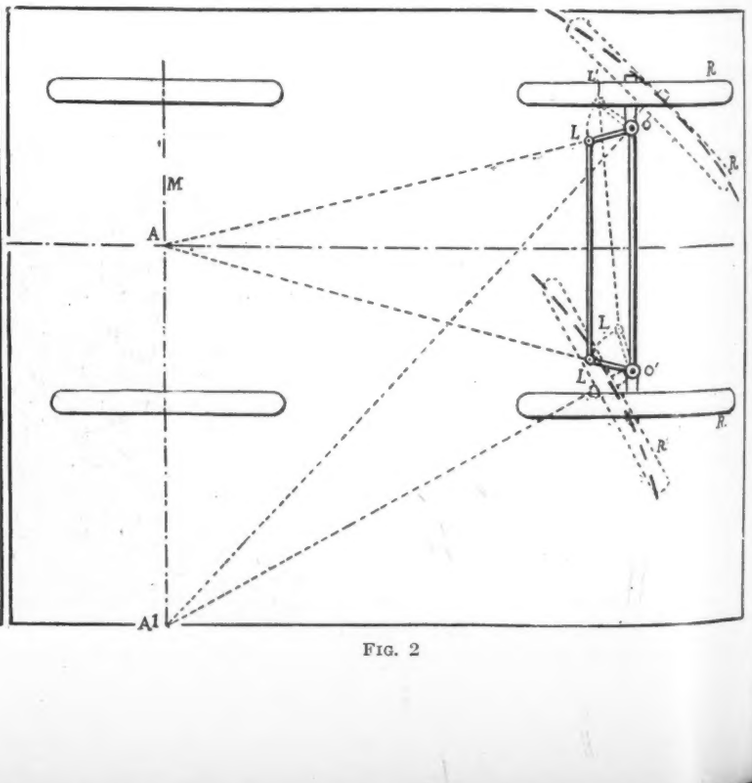


FIG. 2

The Motor Car Repair Shop

Hints to the Amateur

BRAZING is soldering with hard solder. Hard solder is an alloy of copper and zinc, consists of brass filings or chips, and is commonly called spelter. Flux is a substance or mixture used to promote the fusion of metals or minerals. In order to secure the perfect union of metal bodies with brass as the agent of combination, heat and flux are the other essentials, and there are also a number of conditions which are quite as important. First, the parts to be united must be thoroughly clean about the joints, in close contact with each other, and should be securely held together with rivets, clamps, wire or some other means, in order that proper alignment may be maintained throughout the process. Second, the job must be properly heated, the flux and solder carefully distributed, and all operations performed at the proper time. In Fig. 1, for example, part of the operation of brazing a flange to a section of tubing is illustrated. This job was on the water-manifold of a motor car and, owing to the necessary bends in the tubing, it was required that the flange be in a certain position relative to the length of the manifold and its position on the motor. For this reason, after the manifold had been cut off to the proper length, it was assembled onto the motor with the end to be brazed resting loose in the flange. In this position, the tubing and flange were carefully marked with a scratch-awl; one mark being drawn around the circumference of the tubing, and the other at right angles to it, half on the flange and half on the tubing, so that they both intersected at the same point on the line drawn around the circumference of the manifold. The flange and tubing were then removed and thoroughly cleaned up with emery-cloth where the joint was to take place. Care was taken, however, not to eradicate the marks. Then the flange was slipped onto the manifold so that the marks lined up properly, and four holes were drilled at convenient intervals through the boss on the flange and the tubing, and the two firmly riveted together. Now, in order that the work be neat, and to prevent the flux and spelter from running all over the flange, a trough was made around the joint with a composition consisting of a mixture of shredded asbestos and asbestos glue, or asbestos cement. The flux used in this case was a mixture of borax and boracic acid, and a small amount was mixed with water to form a paste and applied to the joint with a stick. The end which was to be held in the hand was now stuffed up with waste to prevent the heat from flowing up through the tubing; the job was now placed over a charcoal fire; some of the larger pieces of charcoal were built up around it, and the flanged end slowly heated. When it began to take on a light red color a light steel rod with the tip flattened out and bent almost at right angles was also placed in the fire. In a few seconds both the end of the rod and the job had become heated to a light red color; the tip of the rod was removed from the fire and a small amount of the flux powder was scooped up with the flat or spatulated portion and applied to the job. Two or three doses of the flux applied in this way and carefully distributed were sufficient. The spelter was applied immediately afterwards in the same manner; it melted and flowed readily, and as soon as it had flowed all around the joint the job was removed from the fire and allowed to cool. The asbestos trough was easily struck off when the job had become cold.

FIG. 1

REMOVING BALL-BEARING CUPS

Although the outer ball races of an adjustable ball-bearing rarely require replacement when proper adjustment of the bearing is maintained, replacements are often neglected by the small town repairman or the amature, because of ignorance or the apparent difficulty of removing the cups. Cups can be removed from the hub of a wheel by simply removing the wheel and applying force from the opposite side of the hub by means of a hammer and drift, as shown at C in Fig. 2. Of course, light blows should be used and the drift moved around near the circumference of the cup, so that it is driven out evenly and without damage. Removing the cup from the end of a rear axle-housing is a trifle more difficult, especially if it is desired to make the removal without disassembling the axle from the car. With a wheel puller, with reversible arms, the cups can in some cases be very easily removed; but in almost all cases the method shown in Fig. 2 at B can be successfully applied; for the holes H, generally four in number, are bored by the manufacturer for this purpose before the cups are pressed into place. In removing or replacing cups it is very necessary that the recess in which the cup sets is absolutely clean, before operations are commenced, for a little grit or dirt can make much trouble.

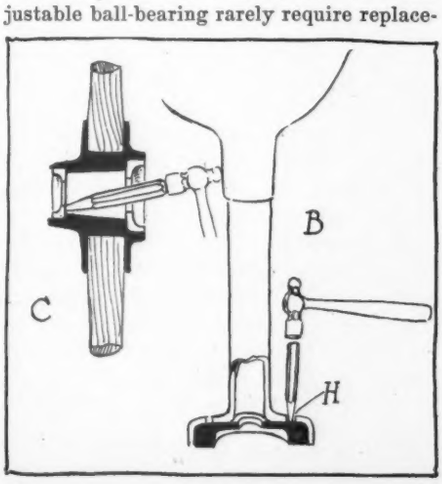


FIG. 2

HOW TO USE SOAP

In using soap on the varnished surfaces of motor cars every effort should be made to prevent the raw soap from coming in contact with these surfaces. To prevent damage to varnished surfaces, as well as the waste of the soap, it should be thoroughly dissolved in water before using. The method adopted by many of the large users of soap in cleaning motor cars, both in Chicago and New York, is as follows: Dissolve 1 pound of high-grade soft oil soap to each gallon of water and use from ½ to a full pint of this solution to each pail of wash water, just enough to form a good suds, or dissolve from 5 to 6 pounds in a 50-gallon barrel full of water and dip this solution out the pail for washing. Do not put raw soap into the pail which is used for washing the car. Wet the car with clean water first, and then wash with suds, and immediately rinse with hose or sponge and clean water. After this rub dry with chamois or soft cloth to bring up high polish. There are few, indeed, who understand the proper method of using soap on varnished surfaces, and few who realize that economy is gained by using high-quality soap. The above method precludes any waste except by those who desire to be wasteful. The car should always be washed off or wet with clean water to remove dry dust, as soap suds on dry dust tends to spot or streak the car.

POWER, SPEED AND PERFORMANCE RELATIONS

EVERY designer, when he undertakes the task of building a motor car, naturally aspires to do better than he ever made out before, and hopes by dint of skill and persistence to improve upon every other motor car made. When the designs are completed, the material procured and the parts machined, the designer has in his possession ample proof of the wisdom of his methods if the parts assemble without a hitch and show evidences of current refinement.

If the shop in which the work is done is fitted out with ample testing equipment, the designer will be in a position to ascertain as to the efficiency of the respective units. When the units are assembled to make the car complete, and the same is tuned up, including a road test, the designer will naturally conclude that his high aspirations were equalled by the product, if all goes well.

There is room for speculation as to the results following this process, since in the combination of the units the sum of little imperfections may have a marked effect upon the ultimate efficiency. The shop test of the respective units, therefore, even if they are properly combined, will not necessarily represent the resulting efficiency of the car complete.

The purchaser of the car, if he finds that it performs consistently, will naturally assume that the designer realized all that he claimed, and if the motor is rated at, say, 40 horsepower, everyone will persist in calling it a 40-horsepower motor, irrespective of the fact that it might be only a 20 horsepower.

Rating the Motors

The first question, then, which might be raised in connection with the ratings of cars is: Would it not be better to cease rating motors on a basis of so-called horsepower? That there should be some method of comparing motors is self evident, and it has been suggested by many who are in a position to judge that piston displacement represents an equitable basis of comparison.

In all truth, to investigate this phase of the rating question sufficiently will be to arrive at the fairly safe conclusion that the displacement of the piston when measuring will not constitute a fair basis of comparing motor for motor between different designs. The horsepower of a motor is not determined by piston displacement; this displacement is found by properly involving two factors only in the endeavor to determine the horsepower rating; this piston displacement is represented by 78/100 of the bore squared, multiplied by the stroke, leaving undecided the mean effective pressure and the number of strokes which can be counted upon in a given time.

The mean effective pressure will not be the same in motors differing in point of design, because this pressure is dependent upon the actual weight of fuel turned to carbonic acid and water. The amount of fuel that can be impressed into a cylinder during the suction stroke depends primarily upon the state of scavenging, and then, upon the effective area of the inlet valves; upon the disposition in the strangle tube, or depression chamber, of the carbureter, and finally upon temperature and some incidental considerations involved.

EDITOR'S NOTE—In this and the following page Thomas J. Fay opens a discussion on the horsepower aspect of motors. Views pro and con from Motor Age readers are solicited for publication in these pages.

State of Scavenging

The state of scavenging depends to some extent upon the compression. It is more complete if the terminal pressure is high and if the exhaust valve is opened at the right time, held open long enough, and is of sufficient area. This condition of scavenging is also good or bad depending upon back pressure, and back pressure, in turn, is increased if the exhaust ports, pipes and manifolds are restricted. In many cases the condition called silent performance will be at the expense of power of the motor, because this silent performance is attained by restricting the passageways of the muffler. True, there are mufflers in which the design involves acoustics rather than strangulation and in such mufflers it is even possible to consider that they help the motor a little bit rather than to add to the back pressure. Besides this question of the weight of mixture which can be gotten into a cylinder and exhausted within the available time, there is the compression to be taken into account, since it influences the mean effective pressure. If the compression is too low or too high, which will be true if the piston rings are not tight, or if the combustion chamber has excess volume, the effectiveness of the combustion will be diminished accordingly. Why this compression, if it is low or high, diminishes the effectiveness of the explosion, is a matter which has never been adequately discussed, and it might be that all the reasons are not known. There is one point, however, which stands out prominently but involves the rate of inflammation of the mixture. In a thermo-dynamic sense, there is one compression, considering the right temperature, which will make the rate of flame propagation afford the maximum for maximum practical result, because it will be the rate which will enable the piston to absorb the greatest possible amount of energy and transfer it through the connecting rod, to the crankpin, then to the crankshaft, from whence it will flow to the flywheel, to be taken up, equalized, and delivered to the transmission system at a constant rate to the point of tire contact with the road, meeting there its reaction and the resultant resolved component will be the speed manifestation desired.

If the compression is too high, and the rate of flame propagation is high accordingly, the piston will not be mechanically capable of receding before the wave of pressure fast enough to absorb the maximum energy which, under the circumstances, will be lost.

If the piston does not recede with sufficient speed before the wave of pressure, the peak of the wave will be high, indicating a high temperature. This high temperature, which will be abnormally high under the circumstances, will permit the cooling water in the jacket to absorb more energy in a given time, because the difference in temperature between the flame swept surface of the combustion chamber and the exterior surface will be on an increased basis. Obviously, then, the energy which is not absorbed by the piston, will go to the waterjacket and the point here to be made is adequately brought out in that it shows the necessity of a compression which will induce a rate of flame propagation and other combustion conditions to which the piston is suited, involving its ability to recede before the wave without permitting the pressure to increase beyond the most efficient point.

When the thermo-dynamic situation is disposed of, there is still the problem of mechanical efficiency to be coped with. It is highly improbable that all motors are equally efficient mechanically, or will it be a safe guess that the difference is only nominal. When a motor is running free and makes its highest attainable speed, that speed is an indication of the mechanical efficiency of the motor. Some motors reach a stable speed condition—running free—at 1,000 revolutions per minute; others at 1,500 per minute, a few at 2,000 revolutions, and it is claimed betimes that motors make 3,000 and 4,000 revolutions per minute, running free. At all events, disregarding for the time being these high claims, it is a certainty that a motor running free is wasting all the energy used up in the process and the mechanical efficiency, from a practical point of view, is zero.

Finding Speed of Motor

The next step in this process of reasoning is to find the speed at which the motor will deliver its maximum horsepower, and experience seems to indicate that well designed motors deliver maximum power when running at about two-thirds free speed. If this is true of the well designed motor and is not true in certain cases, then the point of maximum power as it relates to free speed is an indication of the mechanical qualities of the motor.

There is one more point in the way of fixing the horsepower of a motor in relation to the piston displacement, which point involves the service to be rendered by the motor. When a designer starts out, he must of necessity review the situation and make up his mind as to the amount of work the motor is to do, and then design with a view to realizing the best results from that point of view. In a racing car, for illustration, it is not necessary to have a motor that will be flexible. In other words, the motor should be capable of delivering the maximum possible power at the maximum attainable speed. To accomplish this it is necessary to design for the high-compression, good-scavenging conditions, and a high mean effective pressure. In this process the valves must be very large, precisely timed, and mechanically capable of closing within the shortest possible angular distance of travel of the camshaft. A motor such as this would, first of all, be noisy, which is objectionable in other classes of service and it would be short lived because the valves would not stay tight for any great length of time and the bearings will be hammered out due to the high speed, high compression, and high duty. In addition to all of these objections, the motor would be lacking in flexibility because the curve of torque will not be flat top and it will reach its peak at a high point in the speed range of the motor.

Remember Wind Resistance

The same designer, if he is to work out a problem involving a touring car, will remember that wind resistance is not a large factor and that the power required will be far less than in racing, even though the weight of the car will be far more and he will trade accentuative power for flexibility.

This other process of design, which affords flexibility instead of accentuative power, is one that will produce a more stable motor and the performance of the motor will be more nearly noiseless. In this touring design the compression will be considerably lower, the valves will be smaller and the mechanical details will be more stable because the kinetic strains will be much reduced, since the reciprocating mass will not have to be reversed at higher speeds. The touring design with this lower compression—cold—will have a flat top curve of torque and the power of the motor, while it will not reach the high maximum of the racing design, will be adequate for other purposes and it will be more nearly constant for a considerable range of the motor speed.

If the reasoning herein is founded on fact, or if it approximates the situation within limits, the A. L. A. M. formula represents a simple approximation of a reasonable expectation of all round good motors. This formula takes into account a piston speed of 1,000 feet per minute for all motors irrespective of stroke, so that this factor may be cancelled at once and for all. With this condition fixed, the formula says that the power of the motor is proportional to the square of the bore of cylinder, multiplied by the number of cylinders, divided by the constant change the committee fixed as 2.5. Experience has shown that good average motors under touring conditions representing a fair degree of flexibility, are capable of delivering the power represented by this formula, and of doing so under conditions of good flexibility, but the formula does not represent, of necessity, the exact power of any motor. The exact power of a good motor depends upon all of the values as hereinbefore set down, and how the designer coped with them.

Conflicting Views Regarding Formula

The above formula as devised by the technical committee of the A. L. A. M. is intended to cover conventional types of motor car motors working, four-cycle. Motorists, when they have an opportunity of observing how different motors perform at variance with each other, hastily reach the conclusion that the formula is not broad enough in its scope and that there should be a special formula for each type of motor.

Referring to types of motors, there are natural subdivisions, as T, L, spherical and flat head. Then there are long and short-stroke motors. The respective advocates of these generic types in designs naturally claim for their product all the virtues, and, since these features of design are absolutely independent of piston displacement, if they do influence the power of the motor to a great extent, then the question is: Why should there not be a formula for each of the types of heads, rather than based on piston displacement?

Committee Acts Wisely

The committee, having to struggle with this problem, seemed to have been wise enough to stick to the middle of the road, and no doubt reached the conclusion that the average motorist does not wish to make a business of running his car to the extent of becoming a technical expert; he only wants it for the service it will render, and he is indifferent to the design details, provided the car gives good service. In any event, the power of a motor, considering the combustion chamber contour, is merely affected by changes in the mean effective pressure. A spherical head has a certain value, since it affords the requisite compression with the minimum of flame swept surface. The T type, on the other hand, has the same compression, or may have, at any rate, but the flame swept surface will be greater, and the formula was not intended to cover the effects of the difference in flame swept surface for a given compression with a given piston displacement. Thermo-dynamically, the formula will become so complex that it would stagger many engineers of much skill, and it would prove to be a hopeless jungle to the average man.

The flame swept surface as it relates to motor designs represents an important consideration, involving the rediator more than it does the power of the motor. True, if the flame swept surface is great in area, the amount of heat lost to the waterjacket will be relatively large, and the power of the motor will be reduced, because the mean effective pressure will be reduced. The difference, however, is not so great that the average motorist would care to take the disadvantages with the increased power. The disadvantages come by way of exposed tappets, rocker arms and other details in a mechanical way which, if they are not well made, will be noisy, and if they are not of good material, even if they are well made and fitted, will become noisy. In other types, as the T and L, although it is true that the flame swept surface must be greater, it is true also that the camshaft and the mechanism involved are housed in and the noise due to lost motion is muffled.

Discussing Structural Phases

The idea in discussing these structural phases constitutes a point approaching the ultimate conclusion, and is to show that they are all motor details, entirely beside the question of the horsepower formula, it being the case that the in power changes are not necessarily so great in magnitude as to require treatment.

In recent times, racing events and other road work afford evidences of improved motor performance. This general increase in power all along the line seems to be due to a better understanding of cam work and, perhaps, to overlapping. More power was partly due to better condition of lubrication and to the use of superior lubricants. It has been demonstrated that good lubrication will do more to increase the maximum efficiency of the motor and to maintain that efficiency for a long time than any other one thing that can be utilized. The A. L. A. M. formula can scarcely be made to represent matters of this character, and motors, if they are not properly lubricated, or when they are in bad condition as a result of neglect to lubricate, will fail to come up to the formula. The formula then contemplates good designs, good conditions, and there will be no sense in contriving a formula to suit the performance of the motor which is not up to a reasonable standard. The mere fact that there is a difference in power as between two different designs, is a simple indication of the lack of ability on the part of one of the motors, than lack of scope of the formula.

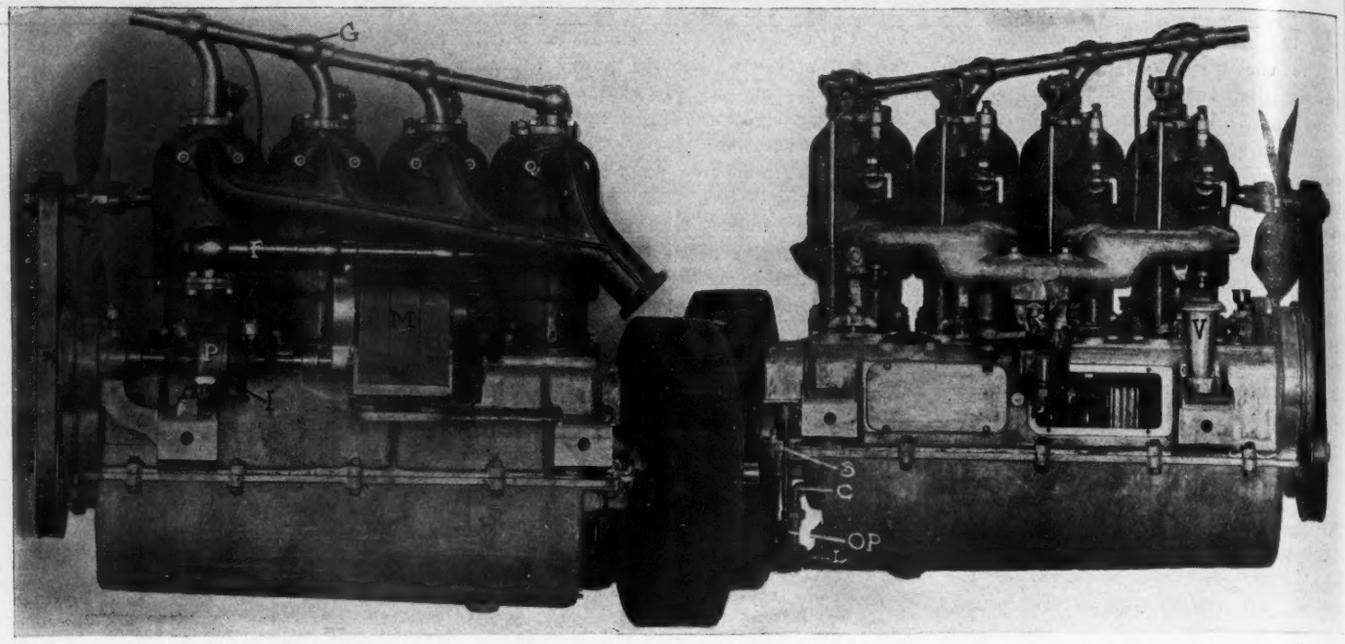


FIG. 1—GREAT WESTERN MOTOR MAGNETO SIDE

FIG. 2—INSPECTION PLATES ON GREAT WESTERN

Great Western Cars for 1910

FOR next year the Great Western Automobile Co., Peru, Ind., previously known as the Model Automobile Co., will continue to build a single type of touring car designated the Great Western thirty. This 1910 model has a 4¼ by 5-inch motor, with a formula rating of 28.9 horsepower. Many new features are present in this model, among which are: the enclosing of the timing gears in an oil-tight case, the removal of the magneto from the intake side of the motor to the exhaust side so that the magneto and the water-pump are both operated from the same shaft, and the parts more symmetrically and conveniently placed. This year the fan is supported on an adjustable bracket on the front cylinder; the flywheel is marked for timing; a water-jacketed Shebler carbureter and Remy magneto are regular equipment; and improved water piping is employed in the cooling system. An improved transmission is also claimed for the new model, the gears being now made in the company's factory. The cone clutch is lined with raybestos, with springs underneath to insure easy engagement; and a novelty has been brought forth in the attachment of the pan which hangs under the motor, clutch and gearbox in that it operates on hinges so that it can be lowered by releasing the catches on one side when the car is being washed or adjustments are being made.

The motor is neat and simple in appearance and has a number of the most approved features characteristic of the best modern engineering practice. The four cylinders are cast separately with long spacious waterjackets, the inner walls are ground to the top of the head and the heads are machined to prevent the accumulation of carbon, connections are very direct and quite accessible, all moving parts are adjustable for wear, an absolute interchangeability of parts is claimed, and all outboard bearings not automatically lubricated by the oil circulation in the motor, are provided with compression grease cups. The outside features of the motor are very clearly shown in Figs. 1, 2 and 3. In Fig. 2, the right side of the motor, the valve mechanisms which are operated from a single camshaft within the crankcase, may be plainly seen. Note the accessible location of the spark plugs and priming cocks in the intake valve chambers, and the peculiar construction of the intake manifold. This type of manifold construction has been successfully employed by some of the most prominent motor manufacturers. The carbureter, as may be seen, is also accessible, a feature which is greatly to be appreciated by the owner or repairman who has found it necessary on some cars to drop a most unwieldy pan then try to make adjustments or disconnect a carbureter which is located in a most unapproachable position. Two large hand-hole plates in the side of the crankcase are provided in order that the contents of the crankcase may be readily inspected; and a vent pipe V relieves the crankcase compression. This vent pipe is so constructed that oil cannot possibly be thrown out and yet the compression is released. Between the end of the lower half of the crankcase and the flywheel may be seen the oil pump OP which maintains the proper level in the upper portion of the lower half of the case. It is a gear pump, gear-driven off the end of the camshaft through the vertical shaft S; and draws the oil from the lowermost portion of the oil reservoir at L and forces it into the crankcase proper through the connection C.

Turning to Fig. 2, the left side of the motor, special attention is called to the construction of the exhaust manifold, it is not only graceful in appearance and easy to remove, but its chief feature is that it has no sharp bends and enlarges gradually toward the rear end so that the gases are so well taken care of that back pressure is reduced to a minimum. The direct connections and rigid supports of the magneto and waterpump are shown in this illustration; the magneto M resting on a bracket cast integral with the case, and the water pump P bolted to a boss on the leg of the engine. The water entering the pump at the inlet I, passes up into the waterjackets of the cylinders through the manifold F, and after circulating around the cylinder walls, valve and explosion chambers, issues

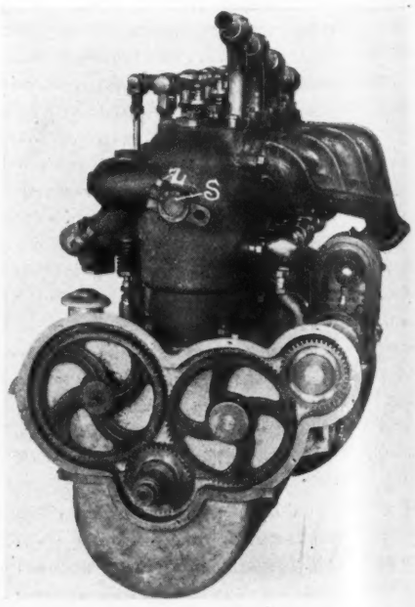


FIG. 3—GREAT WESTERN FAN ADJUSTMENT

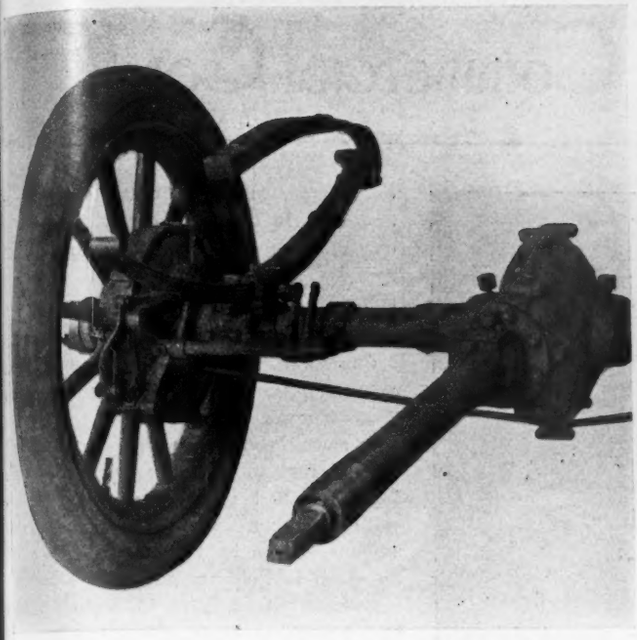


FIG. 4—THREE-QUARTER ELLIPTIC REAR SPRINGS

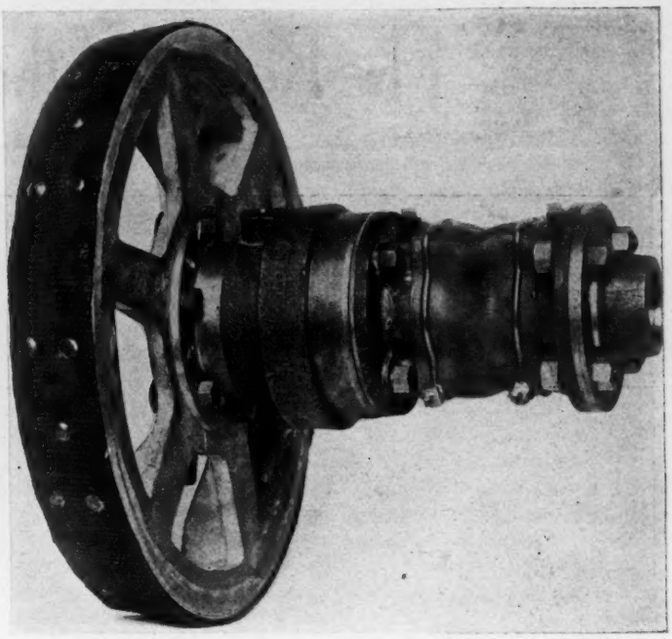


FIG. 5—RAYBESTOS CLUTCH FACINGS IN GREAT WESTERN

Show Numerous Improvements

from the top of the cylinders and passes to the radiator through the manifold G. Each bearing of the shaft which drives the pump and magneto is provided with a grease cup as shown, and in Fig. 3 the fan-belt pulley and the covering of the engine gearcase has been removed to expose the metal timing gears. These gears are enclosed and run in a bath of oil. The simplicity of the adjustable fan support S is also shown in this illustration. Loosening the pinching screw Z permits the rocking up or down of the bracket to secure the desired tension.

The exhaust valves of this motor are located in the center of the cylinder head, and operated through pushrods and rocker-arms. They are contained in cages and may be readily removed for grinding. The intake valves are contained in outboard chambers characteristic of an L type motor, and operated in a conventional manner from lifters below. All pushrods are adjustable and the entire set may be easily removed for inspection by simply removing the four yokes through which they are clamped down to the crankcase. All pistons are ground to very accurate measurements and are ribbed for the purpose of reducing weight without decreasing their strength; and to further strengthen their construction and reduce expansion, their heads are convexed. Each piston is annealed to eliminate the unequal strain of the metal when subjected to heat, and then ground to measurement. Four eccentric expansion rings are fitted to each piston and a snap ring is employed to hold the wristpin in place. Oil grooves are also cut into the pistons so that the oil may be uniformly distributed to the cylinder walls, and every piston is machined on the inside to a given weight in order that a replacement may be made without throwing the motor out of balance, should a replacement be found necessary. The connecting rods are of drop-forged steel and of I-beam section, with die-cast nickel babbitt bearings at the piston end and split bushings of the same material at the crankpin end. The crankshaft is a solid forging with a flange forged integral with it, to which the flywheel is bolted, and is supported in five die-cast nickel babbitt bearings with a bearing surface of reasonable area. The camshaft, which is supported on three main bearings, is a solid forging with all cams forged integral; and it is so arranged that by loosening the nuts on two of the three bearings the camshaft can be withdrawn. The crankcase is of aluminum alloy, and the motor is so designed that the working stresses of the cylinders do not fall upon the crankcase but are taken up entirely by the steel studs that hold the cylinders and support the crankshaft bearing caps as well.

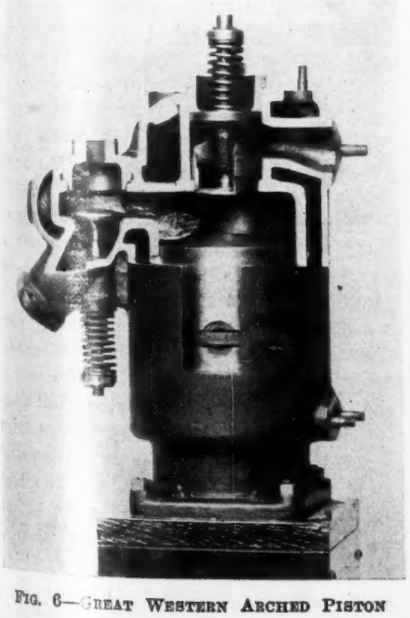


FIG. 6—GREAT WESTERN ARCHED PISTON

Transmission from the motor to the rear wheels of this car is conventional in every respect. The clutch is of the regular cone type faced with raybestos, a composition of asbestos and fabric which has been widely adapted as an efficient brake-lining material, and springs have been fitted beneath this clutch facing to facilitate smooth engagement. The change speed arrangement is a sliding gear transmission of the selective type giving three forward speeds and reverse. A locking device is fitted to this mechanism to prevent the gears from sliding out of engagement and it is impossible to bring two sets of gears into mesh at the same time. Drive to the rear axle is by means of a shaft, enclosed in a tubular housing which serves as a torsion tube. The rear axle is of the semi-floating type and the front axle is one-piece nickel steel forging. The frame is of drop construction of pressed steel channel section with a subframe for support of the motor and gearbox, and it rests on semi-elliptic springs in front and three-quarter elliptics in the rear. Wheels of the artillery type with large spokes are used and they are equipped with quick-detachable rings and 34 by 3½-inch tires. Two separate sets of breaks of the internal and external type are employed, both acting on the pressed steel drums of the rear wheels. Control of the car is through a steering gear of a popular type, spark and throttle levers over the steering wheel, clutch and service brake pedals and a foot accelerator, and changegear and emergency brake levers at right of driver's seat.

The Realm of the Commercial Car

CINCINNATI'S NEW MOTOR PATROL, DESIGNED BY CHIEF MILLIKEN

Taxicab Drivers Gain Point

HEAVY fines and imprisonment no longer threaten Paris taxicab drivers who run with a smoky exhaust, or allow their rear light to be blown out. Drivers in the French metropolis long have been unfettered by a speed limit, the police recognizing that all the public needed was protection from the reckless driver and not a stereotyped rate of speed.

Motorists, and especially taxicab drivers, have been specially troubled, however, by the regulation making it an offense to emit smoke from the exhaust pipe and to run without a rear light. The first offense meant a fine, the second ditto and the third a day in jail. For some time taxicab drivers have been protesting, and so effectively that special instructions have now been given to the police. The police sergeant can stop any vehicle emitting smoke and, if without passengers, request the driver to draw off the excess oil causing a dirty exhaust. If there are passengers the driver can remedy the smoke nuisance on obtaining their permission to stop for this purpose. If the oil can be drawn off immediately and the smoking stopped, no summons will be issued. If the driver refuses to stop his engine smoking, or if the passengers refuse to allow him to stop for this purpose, a fine almost certainly will follow.

Instead of just jotting down the number of car without a rear light, the Parisian policeman will first of all request that it be lighted; if the driver refuses to do this police court proceedings will be the outcome. It is no longer allowed to take a car number and issue a summons for any offense without at the same time calling upon the driver to stop. If the driver refuses to hear the police whistle his employer will be communicated with and the man called upon to give an explanation before proceedings are taken. This will make it impossible for summonses to be issued on wrong numbers.

Despite the changes Paris taxicab drivers are not altogether satisfied. They maintain that imprisonment should be abolished entirely for the mere breaking of road regulations not coming under the criminal code. Unless this is done within a very brief period they threaten to get up a huge demonstration. They already have given proof of their ability in this direction by serenading Judge Hamelin, who has passed most of the sentences of imprisonment, with the noise of several hundred hooters and the boom of the open exhaust. The outburst led to wholesale arrests, but as none were maintained it is evident that a higher authority than Judge Hamelin had interfered.

When horseflesh was in its glory a certain number of individuals earned a livelihood in Paris watching cab horses while their drivers were in the shelter or eating a meal in a near by restaurant. Since the introduction of the taxicab the horse-tender has had to learn a new business. At every stand in the city is now stationed an ex-horse-tender whose business it is to close up the line as cabs move away, to trim lamps and generally make himself useful. If the ground is level, or on a down grade, the tender merely releases the brake and pushes the vehicle along until the line is closed up. If it is on a slope, however, he starts the engine and slips in the low gear without taking out the clutch, runs along side until the gap is closed up, stops and puts into neutral again.

OPENED THE CHIEF'S EYES

Charles E. Dustin, of Worcester, Mass., converted the upholstered tonneau of his 30-horsepower Pope-Hartford touring car into a coal wagon Saturday forenoon and carried fuel to feed fire engines at work in Green Hill park, where the stables were burning, while department coal wagons, drawn by two horses, were stuck on steep inclines leading to the park.

Dustin, with help of C. Arthur Nichols and Robert C. Bliss, all prominent members of the Worcester Automobile Club, carried nearly 3 tons of coal in two loads from the home of chemical No. 3, Adams square, to keep two fire engines at work. The regular coal wagons arrived when the fire had burned itself out and the big barns were burned down. "If I hadn't seen it, I never would have believed it," was the comment of Fire Chief G. S. Coleman. "Motor cars will do for anything nowadays. The fellow who said Worcester is too hilly for motor fire apparatus doesn't know what he is talking about. Why, that Pope-Hartford brought two loads and then carried some back while horses were climbing the hills."

FRANKLIN'S NEW MOTOR PATROL

The H. H. Franklin Mfg. Co. has recently delivered to the police department of Washington, D. C., a police motor patrol. It has a Franklin air-cooled 18-horsepower engine, Bosch high-tension magneto and pneumatic tires. The car body is of Prussian blue, with Usatonia red running gear; the panels are of three-ply bent wood; the body is of strong and light construction. The upper part is entirely encased with wire grillwork; the rear part is protected on all sides with curtains. The driver is protected from the weather by a glass front, by a mackintosh apron and by side curtains. The vehicle is fully equipped to serve as a temporary ambulance. The cushions on the inside seats are removable and the seats are hinged so as to lift and provide space for stretchers and other paraphernalia. The space under the seats is accessible by small doors in the rear of the body. There is a medicine chest under the driver's seat and another compartment for supplies back of the seat, accessible from the inside of the body. Two brass lanterns are instantly detachable, but are held securely against rattling when in place. The car is equipped with an 11-inch gong. The pneumatic tires are 37 by 5

inches. In front the vehicle has full-elliptic springs and at the rear semi-elliptic and coil. The weight of the car, fully equipped and with gasoline and oil, is 2,980 pounds.

DESIGNED BY POLICE CHIEF

Cincinnati is using a motor patrol which was designed by Colonel Paul M. Millikin, chief of the Cincinnati police department. There is every possible device and article on the machine which would be of service to the police on emergency calls to fires and accidents. Two pneumatic stretchers swing by springs over the seats on either side. Life and fire lines, medicine chests and bandages all are within easy reach. A squad of picked men, known as the riot squad, accompanies the car on all the runs made in the city.

BRITISH GATHER DATA

About a year ago the secretary of colonies of Great Britain instructed the governors of the different British colonies to furnish him with all possible data concerning the possibilities of introducing or selling British commercial vehicles in their respective territories.

For the purpose of finding out just what cars are required, the secretary of colonies had the mechanical transport committee of the British war office prepare a pamphlet or circular which, among other things, contained a schedule of commercial vehicles. Five classes of vehicles were mentioned, and the governors were to indicate or specify in their reports just which class or classes of cars was wanted. The first class consisted of vehicles with trailers or motor trains, weighing not over 14 tons, able to carry a load of 18 tons and having a maximum axle weight of 10 tons. Class 2 consisted of vehicles with trailers weighing 5 tons, carrying a load of 5 tons and having a maximum axle weight of 4 tons. Class 3 consisted of 3-ton lorries, weighing 3½ tons, carrying a load of 3 tons and having a maximum axle weight of 4½ tons. Class 4 consisted of 2-ton lorries, weighing 3 tons, carrying a load of 2 tons and having a maximum axle weight of 3 tons. Class 5 consisted of 1-ton lorries, weighing 1½ tons, carrying a load of 1 ton and having a maximum axle weight of 1¾ tons. Most of the details contained in the governors' reports have not been made public by the government, the information given out being as follows:

Ceylon—All the five classes of vehicles mentioned could be used in this island.

Singapore—All kinds of horseless vehicles would be adaptable here.

Malaga—Mechanically operated vehicles cannot be used at present here.

Hong Kong—It is possible that light lorries might be used in carrying vegetables, fruits, fish, etc., from Tai-po-hu and other localities in this vicinity to Hong Kong.

Isle of Mauritius—There hardly is any possible use for motor vehicles here.

Isles of Seyschelles—The country is not adapted to the use of motor cars.

Jamaica—Light vehicles with trailers and lorries could be used everywhere in this country.

Bermuda—Light lorries and light vehicles with trailers could be well used in this island.

Barbadoes—Only light vehicles could be operated to advantage here. There is a field for them, but not for any kind of heavy motor cars.

British Guiana—There is a good field for light vehicles with trailers and for light lorries. The 3-ton lorries could be used as passenger omnibus and should be able to carry thirty persons.

British Honduras—The roads are not in shape to permit the operation of motor cars.

Leeward Islands—Excepting in Antigua, motor vehicles could not be used in the other islands which form the Leeward island group.

Trinidad—All of the five classes of motor vehicles could be well used here.

Windward Islands—Only in Granada is there a possibility of operating light lorries.

South Rhodesia—There is no use for lorries here, but cars with trailers could be used. However, there would always have to be two operated together, so as to help each other.

Northwest Rhodesia, Zwaziland, Bechuanaland—No possible use for any kind of motor cars.

South Nigeria—Lorries carrying from 3 to 4 tons are specially desirable. The 2-ton lorries also could be used but they ought to have a 24-horsepower motor instead of a 16.

Gold Coast—Light cars could be well used here.

North Nigeria—The conditions of the streets and highways is such that motor vehicles would have a hard time in travelling on them. Yet there seems to be a demand, inasmuch as a light vehicle with trailer is expected soon, having been ordered in England.

Gambia, Sierra Leona—The motor car could not be operated here.

MOTOR LINES IN WISCONSIN

John Vandervant, of Sheboygan, Wis., has established a motor livery service in that city. The main business will be railroad transfer. A seven-passenger car has been placed in service and more machines will be installed as business demands. A motor railway transfer line has been established at Grand Rapids, Wis., by James Howlett, a dray and transfer liveryman. Mr. Howlett has purchased a four-passenger car. C. H. Stevens, of Mukwanago, Wis., a village in Waukesha county, has added a motor car to his livery outfit. Mukwanago is a summer resort, but Mr. Stevens has so much confidence in the venture that he starts operations at the beginning of winter.

TRUCK COMPANY CHARTERED

The Brodesser Motor Truck Co., of Milwaukee, has been granted a charter by the secretary of state. The capital stock is $125,000, and the incorporators include Peter H. Brodesser, Ottilie C. Brodesser and Adolph J. Schmitz. The corporation is formed to take over the motor truck manufacturing business started by the Brodesser Elevator Co., Weil and Burleigh streets, Milwaukee, the object being to make the two companies distinct.

SURPRISES THE NATIVES

The Sternberg Mfg. Co., of Milwaukee, has delivered a 2-ton truck to the Johnson Transfer and Fuel Co., of Bloomington, Ill. The truck was driven to Bloomington and the trip was made without a hitch. The purchaser writes: "Everybody is talking about how the machine stopped on our big hill with a big load and started up without any difficulty. They say there is not a team in town that can do it."

FRANKLIN MOTOR PATROL PUT INTO SERVICE AT WASHINGTON, D. C.

WORKINGS OF BOSCH DUAL IGNITION SYSTEM

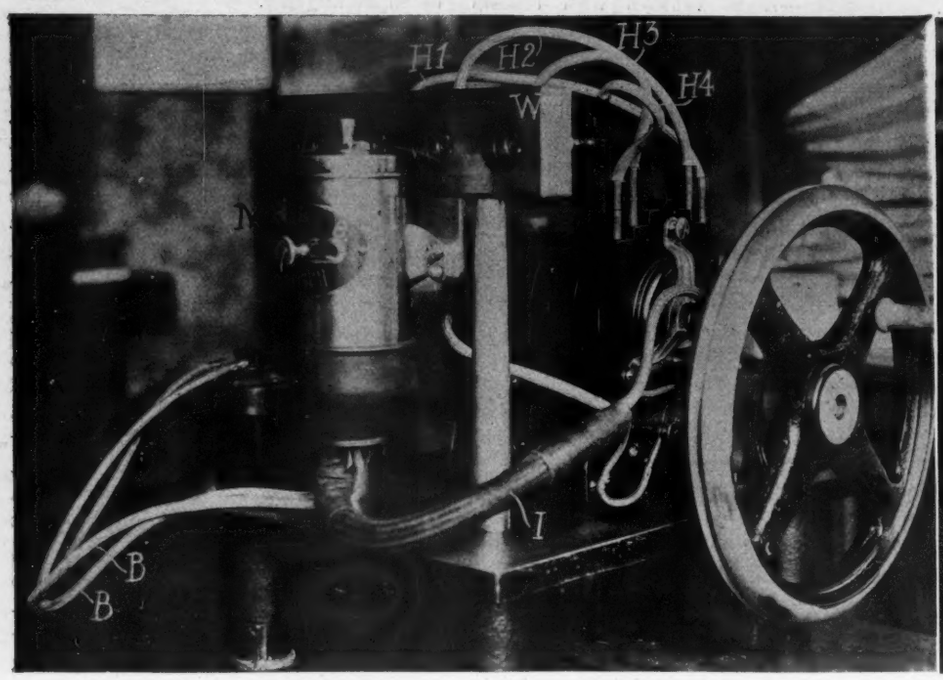


FIG. 1—BOSCH DUAL IGNITION OUTFIT

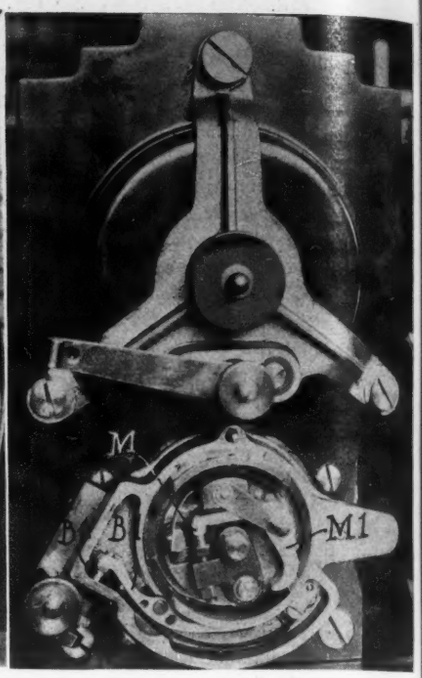


FIG. 2—BOSCH MAGNETO BREAKER BOX

REALIZING the necessity of stability of ignition for motors and considering the nature of the service, exposed as it is to the inclemency of weather and lack of attention, or, what is more to the point, the kind of attention which emanates from the curiously inclined, the Bosch Magneto Co., headquartering in New York city, brought out what is known as the Dual system of ignition, which, in addition to a magneto, involves the use of a battery, instead of the employment of a separate timer and a multi coil, though the magneto is so contrived that a suitable interrupter is incorporated into the mechanism and a form of step-up transformer is made to do double duty, serving primarily to spark the latent charge in a cylinder in the act of starting the motor from the seat, and in case the magneto should become deranged the same coil may be brought into play to serve as a substitute sparking system.

The magneto is installed in the usual way, and although the wiring and connections are different, as will be shown, even so the problem is bereft of complexity and a so-called clean dash is one of the advantages realized, an example of which is shown in a Stearns car, Fig. 4, with the Bosch unit coil shown at A, a pressure gauge B, and speedometer C. The coil, which is of a shape to fit snugly in a circular housing of metal, is so encased as to be water tight, and the condenser, trembler and switch are included within the housing.

Switch Well Placed

The switch is so made and connected as to enable the operator of the car to switch from the magneto to the coil and vice versa at will, and a neutral point intervenes so that the electrical system may be turned off when the occasion requires. Referring to Fig. 1 of the coil and magneto, set up in a testing machine, it will be observed that the switch is at the point 0, which is the neutral; turning the lever of the switch to B connects the battery as the source of electrical supply, while to push the switch clear across to the left throws the magneto into circuit. The wires B B lead to and connect with the battery, whereas the encased wires I pass to the interrupter for the battery system, and the high-tension leads H1, H2, H3 and H4, run from the magneto to the spark plugs, which for convenience in testing are placed in the wooden insulator W.

This differs from all others of the same make, in that a battery interrupter is added and the connections are altered to suit the occasion. The magneto, with these modifications, is shown in Fig. 2, and the cover of the interrupter is removed to enable the reader to note the difference. For the purpose here, and with a view to avoiding complication, but few references will be made and B1 represents the battery contact lever and BC is the battery contact points. For the magneto, M1 is the magneto contact lever and MC is the magneto contact.

Two Sets of Contacts

Neglecting the parts which are required to compose a complete and perfect mechanism, it remains to be observed that there are two separate sets of contacts, each perfectly independent of the other, and either one may be used without the other, nor does it matter if one is out of order; the other will work perfectly in the meantime. The battery contact system, used to interrupt the current flowing from the

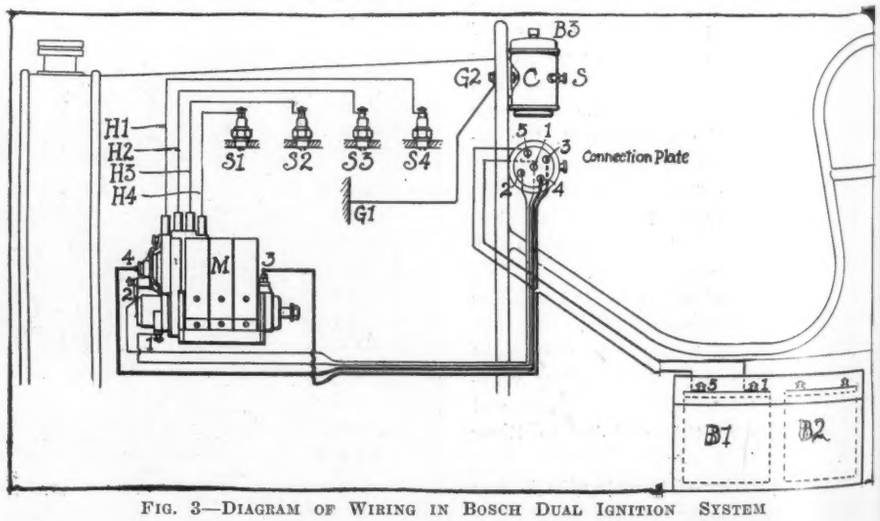


FIG. 3—DIAGRAM OF WIRING IN BOSCH DUAL IGNITION SYSTEM

battery, is just as capable and quite as independent as here arranged as it would be in a separate housing, but it offers the inducement of being in a place of natural advantage and reduces the wiring system to its simplest form.

Bosch Dual Wiring Diagram

For a four-cylinder motor the diagram as presented in Fig. 3 will serve the purpose here, although it will be understood that any motor, with any number of cylinders, as usually employed, may be adapted. This system will suffice for ignition purposes. The magneto M is placed at any convenient point, and high tension leads H1, H2, H3 and H4 may be connected to the four sparkplugs S1, S2, S3 and S4. In these respects the dual system is no different from the conventional forms of high-tension magnetos.

Back of the high-tension leads, as they pass from the magneto to the spark plugs, the system takes on a dual character, and the connections between the coil C, on the dashboard, the magneto M, and the battery B1 or B2, if a reserve battery is available, should be from No. 1 on the magneto and No. 1 on the battery to No. 1 on the connection plate of the coil C, which is given diagrammatically just below. Nos. 2, 3 and 4 from the magneto should connect to corresponding numbers on the connection plate of the coil, and No. 5 of the battery should lead to No. 5 of the connection plate of the coil. The ground connection G1 to G2 completes the circuit. The connections to the control, which is a switch S, are made when the system is assembled, and in starting all that can be done is to press the button B3 on the top of the coil, when, if the conditions are right in the cylinders, as respects mixture, the motor should start.

It is generally well understood that a static transformer will not set up an inductive secondary electromotive force when a continuous current is applied to the primary windings of the transformer, and this system mystifies many motorists because they do understand that static transformers are usually designed for alternating current work, and they do not see wherein the difference lies or why this particular transformer will work and others will not.

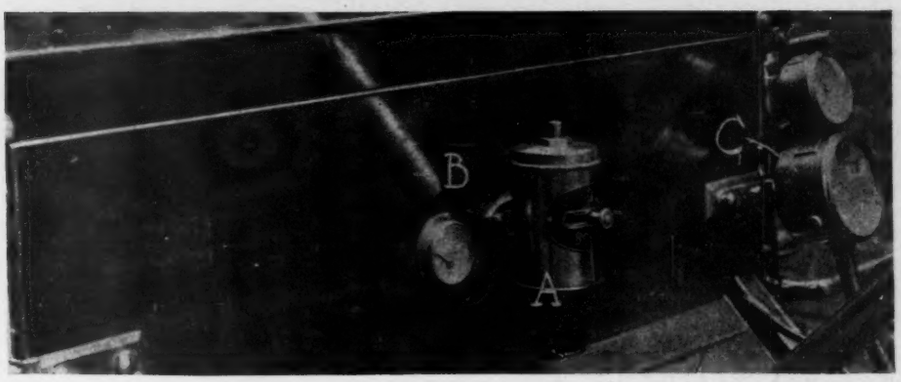


FIG. 4—CLEAN DASH POSSIBLE WITH BOSCH DUAL SYSTEM

There are one or two little details that stand in the way of a perfectly clear understanding of this situation, and those who understand that a coil with a trembler will deliver a spark, have only to remember that the Bosch coil, as used in the dual system, is a trembler coil when the button is pressed, and a step-up transformer at all other times. As a step-up transformer it receives its intermittent current in the primary winding, from the battery, to be sure, but the system of wiring is so contrived that the battery current is interrupted by the battery interrupter B1, Fig. 2.

Useful for Sparking Purposes

An intermittent current, while it will not deliver a secondary electromotive force holding to the sine form of wave, will, nevertheless, induce a secondary electromotive force that will serve for sparking, when the primary current is so impressed. This is what happens when the battery is cut in by the switch S, Fig. 3, and the system gives one spark per interruption, which is all that is required in ignition work provided the spark is rightly timed and of sufficient voltage and energy.

Fig. 6 is a diagram of the system, in a characteristic way, in which B1 is the battery, I is the interrupter, PW is the primary winding of the transformer, SW is the secondary winding of the transformer, and SG is the sparkgap. In the Bosch dual system, I is located in the magneto for convenience, PW and SW are combined in the coil C, Fig. 3, and the gap SG represents one of the sparkplugs S1, S2, S3 and S4, Fig. 3.

The practical way in which the scheme is carried out is best shown in Fig. 7 of the Bosch coil in section, which, together with the explanations, affords all the information that can be of any value in view of what has been said. In this illustration 1 is the cylindrical housing for the coil with its cover cap 2. Within the housing is the soft iron core 3 around which the winding is placed, as shown. The condenser 8 works in connection with the coil. S7 is the switch handle, which protrudes from the coil. Four is the connection plate at the base with which the connections 6 attach. The vibrator parts are shown in the top, 9 marking the press button; 12 the vibrator spring; and 11 the pin for setting the vibrator working.

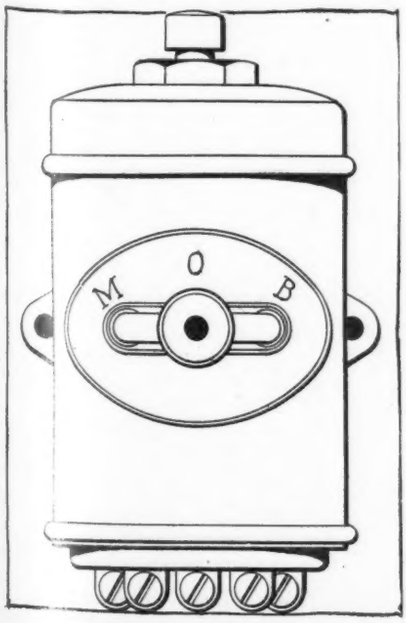


FIG. 5—THE DASH COIL

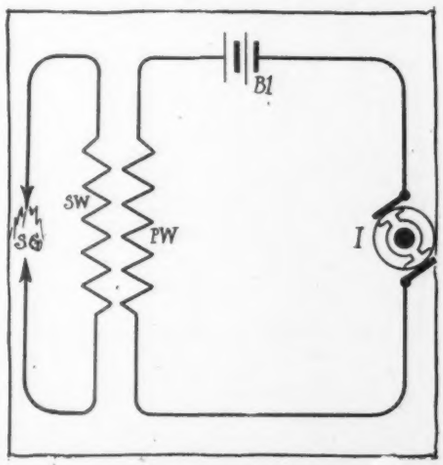


FIG. 6—BOSCH DIAGRAM

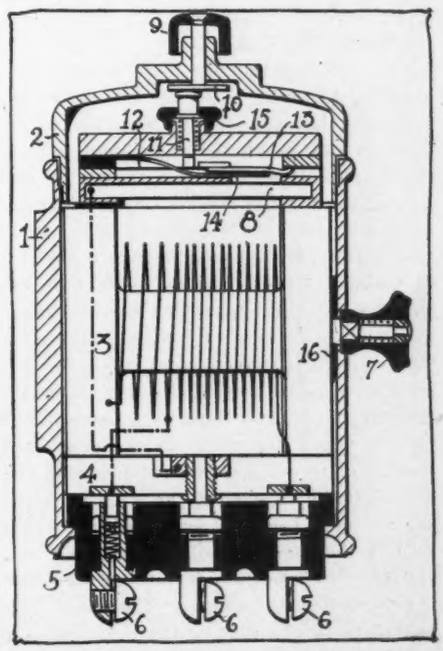


FIG. 7—SECTION DASH COIL

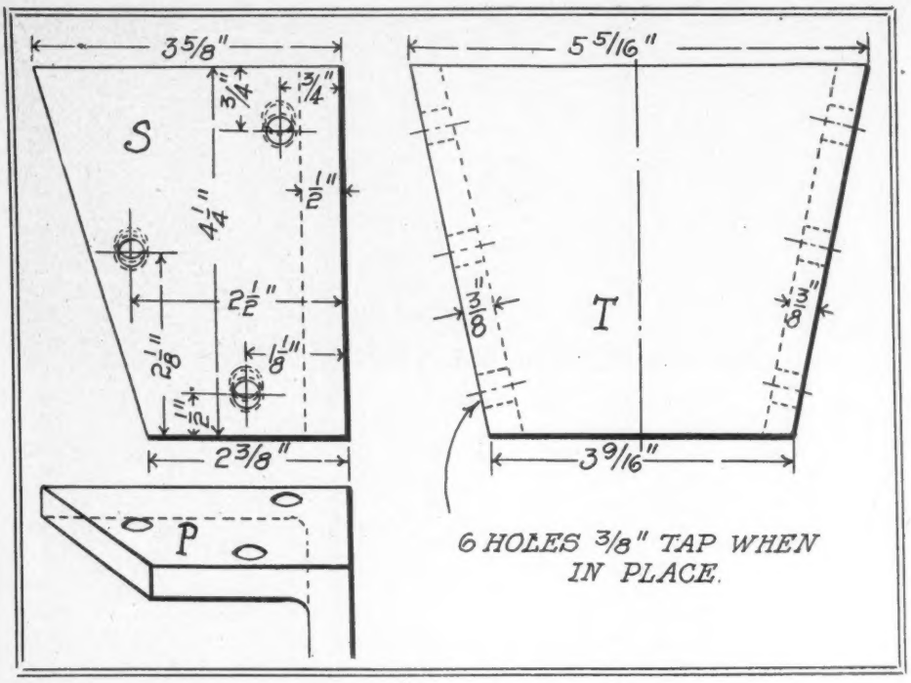


FIG. 1—BED PLATE FOR ATTACHING MAGNETO

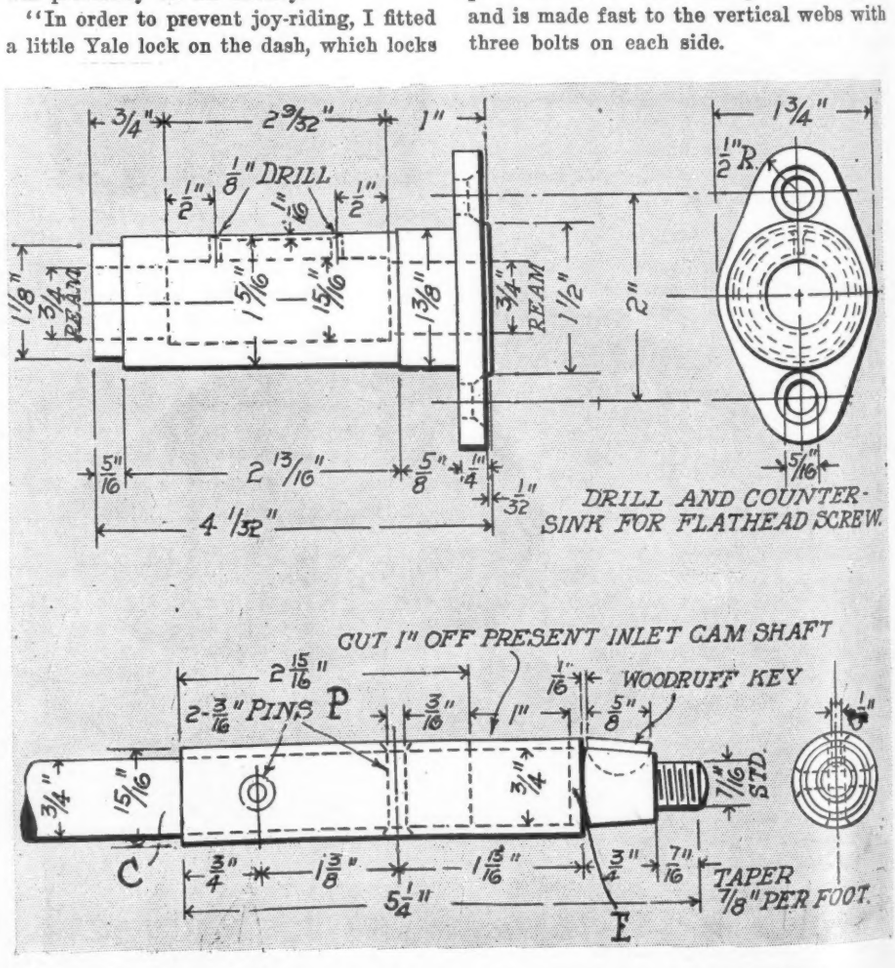
Attachment Idea for U. & H. Magneto

J. S. BRETZ CO., New York, N. Y., has issued a series of six mechanical illustrations showing how the U. & H. master magneto may be attached to a model S Buick car, the attachment being worked out by Joseph Tracy, and standardized so that a magneto of this type can be attached to this make of car in any city in the country. This U. & H. magneto is of the high-tension type, not requiring any step-up coil in the dash, the entire ignition system consisting solely of the magneto, the four spark plugs, and the usual four wires to the cylinders. A single wire leads from the magneto to the switch on the dash. In making the necessary alterations for attaching this magneto to the Buick, Mr. Tracy said:

"In looking the car over before commencing to make notes for the drawings, I found that the only alterations to be made would be on the right-hand side of the motor. Here the main feature in the way of placing the magneto, was the shape of the curved gas inlet manifold. I removed this and replaced it with a perfectly horizontal one. Having no further use for the battery which was carried under the rear turtle deck, I removed that also. The coil was removed from the dash, and as the magneto carries its own timer internally, I removed the timer, and covered up the timer shaft hole in the crankcase with a plate cover. The extension of the camshaft which carries the gear to drive the magneto I carried out through a blind hole in the forward end of the crankcase, and all that was necessary to do there being to remove the cover of the hole. The bed plate in the arm of the crankcase on which the magneto rests, I made of bronze, and after having everything fitted I found that it was as easy, a quarter turn sufficing, to crank off the motor on the magneto as it was previously on the battery.

"In order to prevent joy-riding, I fitted a little Yale lock on the dash, which locks the bonnet in place so that it cannot be opened. It also cuts out the ignition service, and as I have the only key for the lock, the car cannot be used."

Fig. 4 shows the magneto M in place on the right motor arm, secured by steel straps S held fast to the crankcase base at K. Four dowel pins D are used between the magneto base and its foundation on the crankcase arm to hold the magneto in proper alignment. The method of drive is shown. Fig. 2 shows how the blind end bearing of the intake camshaft is bored out and the stud holes countersunk for flat-head screws which will take the place of the studs originally used. In Fig. 3 the method of extending the end of the camshaft is illustrated. One inch of the camshaft is cut off, then the extension E, which is 5¼ inches long and bored out the greater part of its length to form a sleeve, is slipped over the end of the shaft for 2 1/16 of its length and secured into place by the two pins P. The gear which drives the magneto is fitted to the tapered end of the extension and secured by a Woodruff key. Details of the driving gear are given in Fig. 5, and in Fig. 6, those of the driven gear are shown. The plans of the bed-plate for the magneto are given in Fig. 1, T is the top of the plate, S the side, and P a perspective drawing showing one side and part of the top. This bed plate sets down into the leg of the engine and is made fast to the vertical webs with three bolts on each side.



FIGS. 2 & 3—WORK ON CAMSHAFT FOR ATTACHING THE U. & H. MAGNETO

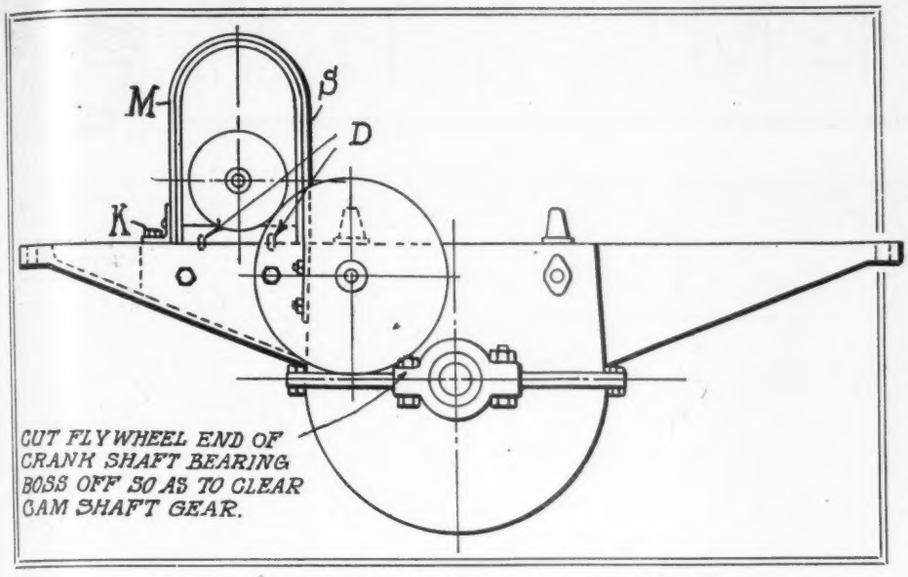


FIG. 4—GENERAL SCHEME OF ATTACHING U. & H. MAGNETO

Some Recent Motor Car Literature

"SOME Points on the Operation and Care of Exide Vehicle Batteries" is a reprint of a paper read by H. M. Beck at the summer convention of the Society of Automobile Engineers in Chicago last August, which the Electric Storage Battery Co., Philadelphia, Pa., is circulating in the interest of its Exide batteries.

A hanger from the Brush Runabout Co., Detroit, Mich., announces its 1910 runabout—everyman's car. A colored reproduction of this little car is shown, together with complete description and specifications. The hanger also depicts some of its other models.

A recent catalog from the Bennett Auto Supply Co., Sioux City, Ia., illustrates and lists its line of accessories. Complete information and prices are given with each article mentioned.

Catalog No. 11 from the Dover Stamping and Mfg. Co., Cambridge, Mass., is a 5 by 7½, forty-eight page booklet listing such articles as funnels, measures, drip pans, oilers, oil cans, and many other specialties. The company announces its new Dover automatic shut-off gasoline funnel, calls attention to its new garage funnel and measure, and states that its Tourist oil and gasoline kit has been greatly improved over last year's design.

From Charles E. Miller, New York, is a ninety-six page advance catalog, in which is listed accessories and motor car supplies of all the standard makes. The information as to styles, sizes, prices, etc., is very complete and covers a multitude of accessories.

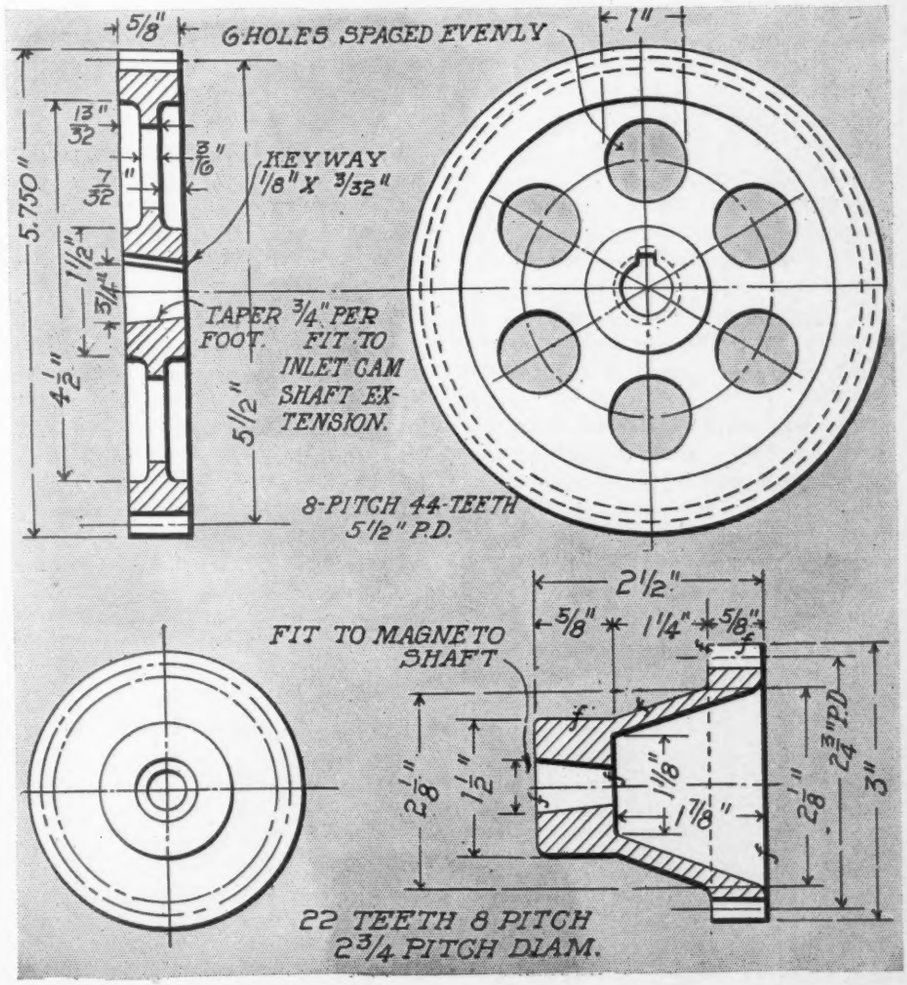
The Liggett Spring and Axle Co., Pittsburg, Pa., is sending to the trade its catalog of motor car springs, which illustrates the full and semi-elliptic, with or without scroll ends, the semi-elliptic ribbed spring, and the coach platform and the scroll coach springs.

The dealers' number of the Rambler Magazine—the official house organ of Thomas B. Jeffery & Co., Kenosha, Wis.—is of particular interest to owners and dealers of Rambler cars. The number contains a picture of the Rambler factory, a portrait of Thomas B. Jeffery, its 1910 models are minutely described, its testing method is exploited and illustrated; in fact, this special issue is packed full of good things for Rambler dealers and owners.

The Garage Equipment Mfg. Co., Milwaukee, Wis., has issued its 1910 forty-page catalog of motor car parts and accessories. Some of the new specialties listed are the automatic spring bumper, Hercules bumpers, the Milwaukee folding tire holders, and adjustable tire holders.

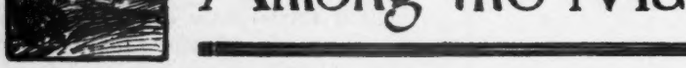
A small hanger from the Firestone Tire and Rubber Co., Akron, O., is a fac simile blue print chart showing the approximate wood wheel diameters for all sizes and types of rims, also the metric and approximate American sizes of clincher tires.

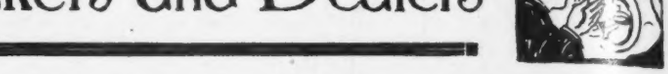
An artistic creation is the catalog of the Matheson Automobile Co., New York, describing and featuring 1910 Matheson cars. The cover, a double affair, in browns, bears an embossed monogram and panel of a classic agricultural design, with the words "Matheson, 1910." This catalog is profusely illustrated with half-tone reproductions of the chassis, motor, and other parts of the car, and the six full-page colored plates depicting the various models enhance the value of the book, as do the tinted half-tone scenes at the bottom of many of the descriptive pages.



FIGS. 5 & 6—GEARS FOR DRIVING THE U. & H. MAGNETO

Among the Makers and Dealers





GREAT ACTIVITY IS REPORTED FROM THE PLANT WHERE RIDER-LEWIS CARS ARE MADE

McNab Maxwell Manager—M. D. MacNab has been appointed manager of the Chicago Maxwell branch, succeeding R. A. Creek.

Located at London—The Madison County Automobile Co. was chartered recently by W. E. Jones, W. H. Riddle, M. L. Burham, J. Scott Chenoweth, R. W. Body and W. J. Mead to conduct a garage and sales agency in London, O.

Federal Plant Busy—The Federal Rubber Company's plant at Cudahy, Wis., is now working full blast. A $50,000 addition has just been completed and is being devoted exclusively to the manufacture of tires and tubing, increasing the production 100 per cent.

Portland Show Dates—At the joint meeting of the Portland Automobile Club, of Portland, Ore., and the dealers' association it was definitely decided to hold this year's show January 24-29. It is probable that the Armory building will be selected to hold the exhibits, as on former occasions.

Will Also Make Tires—The Star Rubber Co., of Akron, O., which has been making druggists' supplies alone, has branched out into the motor car tire business. Papers were filed recently increasing the capital stock from $100,000 to $250,000. The concern has started the erection of a three-story addition to the plant.

Omaha Additions—Two more new firms cut in at Omaha last week, bringing the total of new concerns that have entered the city this fall up to eleven. One of the new companies is that of B. H. Goodman, Iowa and Nebraska representative of the Gaeth Automobile Co., of Cleveland, O. Mr. Goodman will do both a wholesale and retail business. The other firm is the Capron-Wright Automobile Co., which is incorporated with a capital stock of $25,000. This company will handle the Moline, Speedwell and Palmer-Singer. The Coit Automobile Co. has contracted with Lars Gunderson, of Minden, Neb., for the agency of the Rambler and Mitchell cars for Kearney and Adams counties in Nebraska.

New Continental Agency—The Continental Caoutchouc Co. announces the establishing of a new agency at Portland, Ore. The name of the new firm is the Goodyear Rubber Co.

New P. & S. Building—George Parker, Philadelphia agent for the Palmer & Singer, has closed a deal for commodious quarters in the two-story concrete building now in course of erection at the corner of Broad and Callowhill streets.

Ettwein Name Dropped—The name of the Ettwein Motor Car Co., of Kansas City, Mo., has been changed to the McGee-Huckell Motor Car Co. The company has the Fiat, Mora, Wilcox, Courier, Crawford, Stoddard-Dayton and Fritchle electric.

Will Sell Used Cars—The Motor Supply Co. is the latest organization to join the motor colony in Boston as an incorporated organization. It is to be a clearing house for second-hand cars and will not accept any machines below a stated price. It has a location at 15 Berkeley street.

Death of R. H. Dowie—The funeral of R. H. Dowie, manager of the Seattle, Wash., branch of the Fisk Rubber Co., took place on Monday last from the residence of his parents at 1228 South Twenty-eighth street, Philadelphia. Mr. Dowie died in Seattle, as the result of an operation for cancer.

Additions to Rapid Plant—At the plant of the Rapid Motor Vehicle Co., Pontiac, Mich., large additions are being erected. The new buildings which are going up are all of the Kahn system of reinforced concrete and will be modern in equipment in every detail. Some idea may be had from the following list of the new structures: One building, 640 feet by 60 feet, three stories; two buildings, 300 feet by 100 feet, three stories; one building, power house, 119 feet by 120 feet. With the completion of these new buildings the plant of the Rapid will cover sixteen acres.

Gets Acme's Old Home—The Motor Supplies Co., which has recently acquired the Philadelphia agency for the Empire, has taken the old home of the Acme, 608-610 North Broad street.

Terry Well Located—Prominent on the rapidly growing row of Newark, N. J., is the new place of R. M. Terry, agent for Palmer-Singer cars, who has taken a long term lease at 38 William street, corner of Halsey street. Mr. Terry occupies a large fireproof building at this location.

McKinney Changes—The International Harvester Co. has placed H. J. McKinney in charge of its motor car interests in Indiana and he will make his headquarters with the company's branch in Indianapolis. He has been with the southern branch office and sales department of the Fal Motor Car Co. at Memphis, Tenn., before locating in Indianapolis.

Locates in Morgantown—The Central Automobile Co. has been formed at Morgantown, W. Va., by Clarence Lantz president, Leroy Taylor secretary, C. R. Huston treasurer, B. M. Chaplin general manager and J. Leonard Smith assistant manager. It has leased the garage and equipment of the Decker Auto Motor Co. on Walnut street and will run a general livery and repair business.

Hub Segregation—The Overland Motor Co. has just been organized in Boston with Charles G. Andrews general manager. The Overland and the Reo have been handled by the Linscott Motor Co., but because of increasing business it was deemed best to create a new concern for the Overland. J. M. Linscott, who heads the Linscott Motor Co., is a factor in the new company. Temporary quarters for the Overland have been secured at 124 Columbus avenue, but as soon as the

Goodrich Tire Co. moves out at 161 Columbus avenue, next door to the Linscott company, the Overland will move in so they will be right together.

Starts at Wheaton, Minn.—Lee A. Wilson, of Berlin, Wis., has organized the Wheaton Garage Co. at Wheaton, Minn., and will be president and manager.

Gets Detroit Representation—The Great Western Automobile Co., of Peru, Ind., has made arrangements to establish a sales room in Detroit, under the corporation name of the Great Western Automobile Co., of Detroit. This agency will be established at 878 Woodward avenue.

Big Garage for Worcester—The proprietors of the Palace garage in Worcester, Mass., Peter Welin and Theodore Hanson, are now planning to build a garage with the largest floor space in this state, outside of Boston, on a vacant lot at 731 Main street. The new building will have 20,000 square feet of floor space.

Battery Man's New Deal—A. C. Frammell, formerly of the Vesta Battery Co., has become associated with G. Hilton Gantert, Philadelphia agent for the Stearns, at 520 North Broad street. He will continue handling the Vesta product in connection with the Stearns.

New Cadillac Agents—George S. Duby, of Olympia, Wash., has secured the agency for the Cadillac cars, and A. M. Lane has been appointed agent for the same make in Bellingham, Wash. M. S. Bringham, of Seattle, is the state agent for the Cadillac cars. The Everett Automobile Co., of Everett, Wash., will this season handle the Reo.

Seattle's New Row—Indications point strongly to a new row on Fifth avenue, Seattle, which will be in the very heart of the city. The Olympic Motor Car Co. was the first to open up offices and a garage on Fifth avenue, near Union street. Then the Metropolitan Motor Car Co. moved to a new garage built especially for it alongside the Olympic Motor Car Co. The F. H. Bardshar Co., which was formed last week to handle the Stevens-Duryea, announces that it will open its own garage on Fifth avenue next to those just in the course of the next month. The Packard people also are figuring on a place.

Two-Cycle Activity—Work on the addition to the Simplex Motor Car Co., of Mishawaka, is progressing rapidly and will soon be completed. The company is now turning out a car a day.

Mitchell Has Milwaukee Branch—A. Bonnell is manager of the Milwaukee branch of the Mitchell Motor Car Co., at 526-28 Broadway. The Mitchell branch is housed in a fine building, 60 by 120 feet in size, with offices and salesrooms 40 by 60 feet.

Stearns and Mitchell Confused—On pages 6 and 7, Motor Age issue November 11, an error occurred, the exhibit of the Mitchell company being captioned "The Stearns," and the Stearns, on page 7, being captioned "The Mitchell." The Stearns exhibit showed the 15-30 chassis and touring car—a front view of each—and the Mitchell exhibit contained three cars, the side view of the six-cylinder being in the foreground.

More Hub Agencies—The Croxton-Keeton car has opened an agency in Boston. Headquarters have been secured at the Motor Mart on Columbus avenue and the new branch is now in charge of L. F. Witherell, who formerly was attached to the Buick branch. The Palmer & Singer is established in Boston now, an agency for it having been opened a few days ago in a good location in the heart of the motor colony. The office is in charge of Mr. Dyke at present.

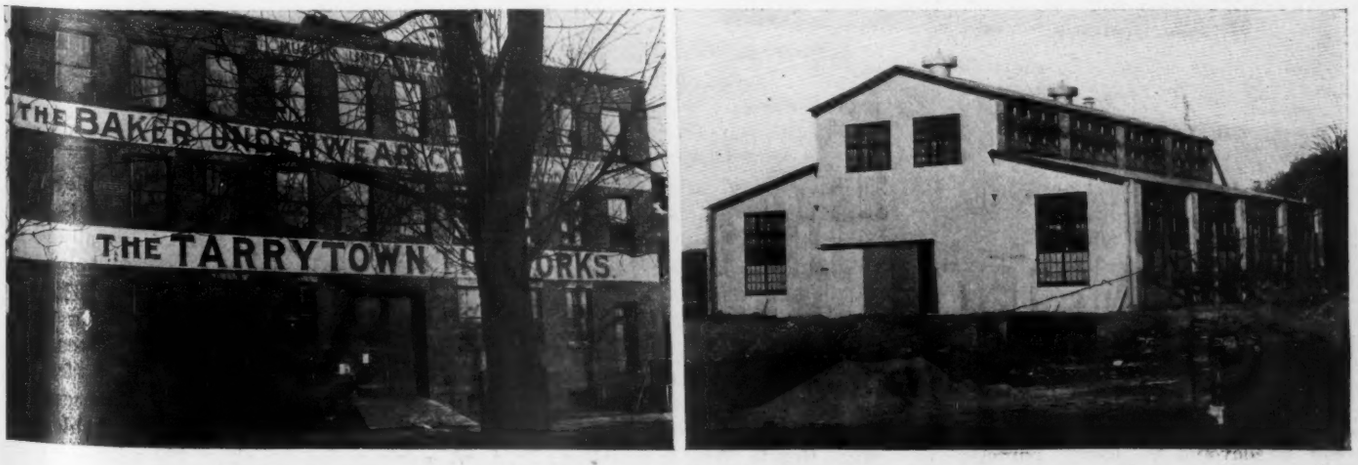
Blood's Capacity Increased—The Blood Brothers' Machine Co., of Kalamazoo, Mich., is completing plans for increasing its capacity and the output of its plant. The capital stock of the company has been increased from $15,000 to $75,000, of which $40,000 has already been paid in. During the past year the company has doubled its working capacity by installing a large amount of new machinery. The working force has also been practically doubled. This has been made necessary by the steadily increasing business of the company. The entire plant at the present time is devoted to the manufacture of universal joints.

Hibbard Joins Stoddard—W. L. Hibbard, founder of the W. L. Hibbard Motor Car Co., Milwaukee, which recently went out of business, has become associated with the McDuffee Automobile Co., Eighth street, Milwaukee, the Stoddard-Dayton representative.

Another General Motors Deal—It is stated on good authority that the 200 acres on which the General Motors Co. has secured an option at Pontiac, Mich., will be used as a site for the erection of a mammoth rubber and steel factory by the company. The proposed plant, it is said, will supply the tires and much of the specially-treated steel to be used by the company.

Louisville's Latest—The Banks Motor Car Co., of Louisville, Ky., has entered the field with the state agency for the Ford cars. J. B. Banks is at the head of the new concern, and J. A. Donahue is sales manager. They have their cars stored temporarily at King's garage, Second and Guthrie streets. The Southern Motor Sales Co., of Louisville, has located at Third avenue and Chestnut street, where it will distribute the Cole in Kentucky, Tennessee and southern Indiana.

Kelly Controls Lear Plant—E. S. Kelly has purchased a controlling interest in the Lear Automobile Co., of Springfield, O. The plant has been operated under the orders of the court by a receiver for several months and recently the General Motors Co. purchased the stock of William Miller, of Columbus. At that time it was thought that the plant would be dismantled, but E. S. Kelly came to the rescue and purchased the holdings of the General Motors Co. and Oscar Lear. The concern will be reorganized at once with a capital stock of $500,000. New buildings will be erected, and Charles L. Bauer, who has been acting as receiver, will be general manager. The minority stock interests are held by about sixty Spring-



RECENT ADDITIONS MADE TO THE PLANT OF THE MAXWELL-BRISCOE COMPANY AT TARRYTOWN, N. Y.

GARAGE OF PACIFIC CAR CO., SEVENTH AND C STREETS, TACOMA, WASH.

field people. The company has discontinued the manufacture of touring cars and is devoting its attention to making motor trucks.

Ford Handling Studebakers—J. H. Ford, of Dodgeville, Wis., will represent the Studebaker lines in a small territory in southwestern Wisconsin.

Goshen Concern Enlarges—Teegarden & Putt, of Goshen, Ind., have leased the first floor of the Kohler block, on North Main street, which will double their floor space and give them two rooms for their garage. They will install an electric charging plant.

Change in Brush Agency—A change has been made in the handling of the Brush runabout in Boston. The little car was sold by the South End Motor Car Co. for more than a year, but the S. M. Supplies Co. that handles the Inter-State and the Empire has secured the Brush agency.

Backed by a Doctor—Dr. L. M. Early, of Columbus, O., will shortly organize a corporation to be known as the Early Motor Car Co., which will open a fine sales room at Town and High streets. The sales room will occupy a part of the old Lazarus stores and will have a frontage of 40 feet and a depth of 187½ feet. He has secured the agencies for the Rambler and the Babcock electric and will have several other lines.

Covey Sole Owner—Howard M. Covey, of the Covey Motor Car Co., of Portland, Ore., has purchased the interest in the company held by Dr. G. E. Watts. Under the present status of affairs Mr. Covey is the sole owner of the business. A quarter block is expected to be utilized for the new garage, which is now being remodeled at Seventh and Couch streets. Several hundred additional square feet will be given over to display purposes on the lower floors. An equal amount of space will be devoted to livery purposes on Couch street, and the upper floor, the present mechanical department, will be augmented with additional machinery and space. Dr. Watts has secured the Portland agency for the Knox.

Pierce Plans—The Pierce Motor Co., of Racine, Wis., will make three instead of twelve models, as stated in Motor Age recently, and none of them will be of the six-cylinder type.

Change of Name—An amendment has been filed to the articles of incorporation of the Bland-Mueller Auto Co., of Milwaukee, changing the corporate name to Franklin Automobile Co.

Starts in Seattle—The F. A. Bardshar Automobile Co. is the latest Seattle concern, the company being formed last week. The company will handle the Stevens-Duryea in Seattle and western Washington. The company is composed of F. A. Bardshar and Thomas G. Young.

St. Louis Show Committee—Frank R. Tate, manager of the B. F. Goodrich Co. branch, has been elected chairman of the annual St. Louis show, which is to be held February 14-19, inclusive. Robert E. Lee is to be chairman of the show. The show committee is: H. B. Krenning, O. L. Halsey, Sam Braeden, Frank R. Tatet and W. C. Anderson.

Another Hoosier Maker—With an authorized capitalization of $100,000, the Star Motor Car Co. has been organized and incorporated at Indianapolis. The company will establish the eleventh motor car plant in Indianapolis and will be turning out cars within 90 days. It is the company's intention to manufacture a four-cylinder, five-passenger touring car, and also a line of commercial vehicles. The product will be known as the Star. Options have been taken on two or three sites and a selection will be made within a day or two. A steel skeleton and brick factory will be erected, plans being already under way. Guy G. Shaw is president; Dr. J. W. Berauer is vice-president; S. J. Summers, secretary, and W. A. Rowland, treasurer. Other directors are: J. A. Diggle, J. Frank Morgal, H. B. Canine, George V. Bedell, Nicholas Noe and Charles A. Brown.

Will Also Make Cars—The Dain Mfg. Co., of South Ottumwa, Ill., will manufacture motor cars in connection with the plant it is building near Welland, Can., a few miles from Buffalo.

Apperson Branch Opened—The Apperson hereafter will be represented in Philadelphia through a branch house, Alexander M. Benson, head of the Philadelphia Automobile Co., the former agent, having been appointed branch manager, with Harry Jones, from the factory, as his assistant. There will be no change of location, the present quarters at 620 North Broad street being admirably suited for the purpose.

New White Garage Planned—Plans have been awarded by the White Automobile Co., the White steamer representatives in Baltimore, for the company's new garage on the southeast corner of Mount Royal avenue and Hunter alley. The building will be two stories high and fireproof. It will be 76 by 134 by 156 feet. Storage rooms, a salesroom and a repair shop will all be provided for. The structure will cost about $16,500.

Morrison Going to 'Frisco—Arthur E. Morrison, of Boston, who has been agent for the Peerless, Rainier, Maxwell and other cars, and recently manager of the Taxi-service Co., has resigned to go to San Francisco and engage in business. When the announcement of his plans were made known he was given a series of dinners. The Bay State A. A. honored him one night, his associates in the Taxi-service company another night, and other friends had him as guest on two other occasions.

Motoring to Blame—There is sorrow in the little town of South Egremont, Mass., and all due to the motor industry. The Dalzell Axle Co. there, that has been in existence for more than half a century making axles for carriages and wagons, has announced it will shut down because of a lack of business. It exploys about 100 hands, and the closing down means the extinction of the industrial life of the little town. There is little call now for the light axles for carriages that it made because of the greater demand for motor cars.

Schebler Builds Big Car—A twelve-cylinder car has been completed by George Schebler, of Wheeler & Schebler, carbureter manufacturers. In building the car he used a Marion chassis, exclusive of the motor. The cylinders are 3½ by 4 inches and are cast singly, being set six on a side at an angle of 30 degrees. They are coupled in such manner that six cylinders can be cut in without the necessity of changing the gear. Mr. Schebler has driven the car about 200 miles over city streets and roads in the vicinity.

News from the Motor Clubs

Good Roads Club Hobby—The Tacoma Automobile Club, of Tacoma, Wash., now has seventy-two members who are doing a great deal for the cause of good roads in the vicinity of Tacoma. A monogram plate is being designed for the members of the club. The design will be large enough so the drivers will have an easy and distinctive way of identification.

Drought Drops Suit—James T. Drought, secretary of the Wisconsin State A. A., has dropped his suit for damages against the township of Black Wolf, Winnebago county, under a new statute making it a misdemeanor to place bumps and obstructions on the public highway. The town board has removed all obstructions and promises to be good in the future. Mr. Drought brought the suit as a private owner simply to test the law and bring the highway commissioners responsible for the obstructions to a realization of the dangers, and therefore refused to prosecute further.

Philadelphia Progress—The November meeting of the Automobile Club of Philadelphia the membership committee reported twenty-eight new members, making a total of 980. There is every expectation of reaching the thousand limit before the December meeting, after which, as provided by the by-laws, a waiting list will be in order. The touring information committee reported the completion of six full map sections, not including that of the Paterson, N. J., district prepared by the committee for the North Jersey Automobile Club. These six sections are as follows: Philadelphia and vicinity, Coatesville, Harrisburg, Easton, Delaware, Water Gap and Easton. The club has inaugurated a chauffers' list for the benefit of its members.

Maine Hunters Motor—Hunting by means of motor cars has become quite a fad in Maine this year. Last season a few cars were used to go into the woods and bring out game after it had been shot, but a new plan has been evolved this year. Hunters who have cars start out in the morning and, after working one piece of woods, will drive to another some miles away, go through that, and continue on in the car elsewhere. As a result large bags of partridge, woodcock, etc., are secured. The law puts a limit on the deer and moose, so these, of course, cannot be taken above the regular number. Some hunters have been able to get bags of game numbering fifty birds in a day's shooting, where before they would tramp all day in one piece of woods and not get more than a dozen, and sometimes not that many. The roads have been improved so much this season that it is now possible to go further into the heart of the woods.

Q. C. M. C. After Home—The Quaker City Motor Club is moving in earnest to acquire a club house of its own. An option on a building in the vicinity of Broad and Walnut streets has been secured, and the membership is being thoroughly canvassed as to its attitude regarding a boost in the dues. The annual banquet will be held on Thursday evening, January 6.

Maps for Motorists—Charles D. Rice, chairman of the good roads and sign boards committee of the Automobile Club of Hartford, Conn., has presented the club with a large wall map of the state, showing all the main highways. William T. Plimpton, assistant secretary of the club, is at work on a distance chart which, when completed, will enable one to tell exactly the distance from one town to another. There are something like 275 towns in the state, and the chart will cover the distances between these from one corner of the commonwealth to the other.

Scorchers are Rampant—The Automobile Club of Hartford, Conn., is making an effort to curb speeding on the Berlin turnpike, which was officially opened to the public by State Highway Commissioner MacDonald 2 weeks ago. Arrests at the Hartford end of the stretch continue and the police are watching that section of the city closely. During the past 2 weeks the Hartford guardians of the law have been very active, practically all the arrests being made by two motor cycle policemen. State Commissioner MacDonald rather infers that it is up to the Automobile Club of Hartford to get busy and attempt to stop the speeders. There is much complaint of dust along the course, and it is pointed out that if anyone went along the stretch at a moderate rate of speed there would be no dust. The Hartford police have no jurisdiction on the stretch proper, so they are at a disadvantage.

Allentown Election—At the annual meeting of the Lehigh Valley Motor Club, of Allentown, Pa., Charles Mosser was elected president, H. J. Larch vice-president, F. H. Werner treasurer, R. L. Stuart secretary; board of governors, M. H. Strauss, William Erdell and W. D. Schartz. J. H. Weeks, president of the Automobile Club of Delaware county, Pa., and chairman of the good roads committee of the Pennsylvania Motor Federation, paid his respects to Governor Stuart for vetoing the Philadelphia-Pittsburg road bill, which passed both branches of the legislature, and urged the nomination of State Senator W. C. Sproul for next governor, assuring his hearers that good roads legislation would receive proper treatment at his hands.

Will Talk It Over—The meeting between members of the Automobile Club of Maryland, Governor Crothers and a subcommittee of the state motor car commission, to discuss the tax features of the proposed bill prepared by the commission, has at last been arranged to take place within a week at the club headquarters. Whatever changes are deemed necessary will be made at this meeting. Another feature of the bill which does not altogether please the members and which may be eliminated, is that which pertains to the taking away of licenses from scorchers. In addition to imposing fines upon persons who break the speed limit the bill, as it now stands, provides that they may be further punished by losing their licenses for a term of days at the discretion of the court.

MAXWELLITES GO HUNTING IN MOTOR CAR IN MAINE WOODS

From the Four Winds

N S E W

Few Have Tags—It has been found that out of the 200 motor cars owned in Yakima county, Washington, only six are supplied with licenses.

Seek a Mountain Road—Motorists are planning to raise $50,000 for the construction of a new road over the Pocono mountains. Boroughs and townships along the route will be asked to assist in the work, the Scranton Automobile Association guaranteeing a portion of the expense.

Another Road Barred—The Massachusetts highway commission has allowed the city of Newton to put into effect regulations which exclude motor cars from the northerly side of Commonwealth avenue from the boundary line between Boston and Newton to the Charles river. However, as the other side of the avenue always is kept in good condition and is wide the motorists will not protest.

Portland After Speedway—The Portland Automobile Club, of Portland, Ore., has appointed a committee to map out a parallelogramic race course for a 10-mile speedway on the Base Line and Sandy roads. The course will embrace much of that over which the races were run last year. The major portion of the course is devoid of any precipitous hills or heavy grades, and offers better scope for drivers in time records.

Will Repeat Long Run—E. P. Blake, New England distributor of Jackson cars, accompanied by Charles G. Percival, of New York, left Boston Sunday for Jackson, Mich., to make their second run from the latter place to Bangor, Me., in a Jackson car. The distance is 1,600 miles. Last year they made the run under adverse weather conditions in a week, but this time they expect to do better. They will leave Jackson carrying a letter from the mayor of Jackson to the mayor of Bangor and will go by way of Buffalo, Rochester, Albany and Boston, stopping only for gasoline and oil supplies.

Worcester Run Plans—The board of governors of the Worcester Automobile Club, of Worcester, Mass., has decided to have an endurance run which, instead of 1 day, will be developed into a 3 days' contest and also will take the form of an early winter motor carnival. Although not definitely decided upon, it was voted to have it on or before December 16, and it was also voted to invite the students of the Worcester Polytechnic Institute gas engine department to be observers. All the car tests after the run will be made in the engine department of the Worcester Polytechnic Institute instead of at a public garage, and in addition to the hard 3 days' run which will be given this year over rutted frozen roads, there will be a clutch and brake test.

Used by Solicitors—Ninety-nine men in forty cars were started out in Columbus, O., the first of the week for the purpose of securing $20,000 for the Y. M. C. A. organizations of the Buckeye capital. The men are public-spirited citizens and the cars were donated by charitably-inclined people.

Unique Private Garage—Dr. R. Y. Henry, of St. Louis, has had built in connection with his new residence on South Grand avenue one of the most unique garages in the city. The garage is, in fact, part of Dr. Henry's dwelling, being underneath the main part of the building. An accompanying illustration shows the garage from the rear of the house. The garage may be entered either from the rear or front.

After Northern Roadway—When congress, this winter, appropriates money for road-building purposes in the Mount Tacoma National park, a strong bid will be made for an additional sum to finance the preliminary survey of a northern roadway, which Major C. W. Kuntz, of the army engineer corps, has mapped out. The road will approach the park from the north direct from Seattle. After entering the park and reaching an elevation of 5,600 feet, it will turn west and skirt the glaciers, until it reaches the southern side of Mount Tacoma, where it will connect with the road from Tacoma, which has been in use for a number of years.

Right Kind of Motorist—Frank Hardart, Sr., whose car, the Elmore, won the recent Munsey run from the capital to Boston and return, is a man of many activities. Besides managing his numerous business interests in Philadelphia and other cities, he is never missing from the entry list of any road event—he doesn't believe in track racing—within 150 miles of the Quaker City, of which he is, by the way, a councilman; he is prominent in the management of the Quaker City Motor Club, and during his sojourn in the summer at his country residence near Glen Loch, on the Lancaster pike, he interests himself in the road improvement schemes of the section roundabout. At a recent meeting of the East Whiteland Township Improvement Association at Mr. Hardart's residence, it was shown that the 4 miles of the Lancaster pike traversing the township has been entirely resurfaced during the year at a cost of $3,400, and that all the other main roads in the township had been put in first class shape. The meeting censured the borough authorities of Malvern for failing to keep its main street, the Lancaster pike, in good condition.

Will Use Old Railroad—The Northern Pacific railway will shortly deed to the state of Washington the abandoned right of way between Tacoma and Vancouver for use as part of proposed highway from Blaine, at the international boundary line, to Vancouver. The strip is 16 feet wide, the width of a standard wagon road, and as it already is graded, all the state will have to do is to put on the surfacing.

Are Hardy Motorists—The Milwaukee Auditorium board, governors of the new $500,000 Auditorium at Milwaukee, has issued a circular to motor car owners offering the mammoth basement of the building for the storing of cars during the winter. The building is fireproof and roomy, but as most Milwaukee owners use their cars throughout the winter, the offer is not being accepted so extensively as expected.

Owen's Challenge Not Accepted—Winthrop E. Scarritt, referee in the New York-Atlanta good roads reliability contest, has announced that no perfect-score car had accepted the challenge made by R. M. Owen at Atlanta recently. One of the conditions of Mr. Owen's challenge was that all cars that finished this 1,100-mile endurance run with perfect road scores submit to a technical examination, and the car that survived with the fewest mechanical penalties be named the real winner of the contest. The chairman of the technical committee was to be Referee Scarritt and the officials that checked the cars at New York were to assist.

Western Clubs Join A. A. A.—The Automobile Club of St. Louis, which withdrew from the American Automobile Association about 2 years ago, has returned to membership in the national organization. The Detroit Motor Club, another of the large and energetic clubs in the west, has applied for membership. Still a third evidence of growth and willingness to coöperate with the American Automobile Association in its efforts for good roads, good laws and favorable touring conditions in all parts of the country comes from the Pacific coast, where the latest reports from the California State Association show that the membership has jumped from a few hundred, a couple of months ago, to over 1,500 at the present time. The Automobile Club of St. Louis has a membership of nearly 450. President Capen has conferred with President W. W. Cowen, of the Kansas City Automobile Club, toward organizing a strong state

association in Missouri. The latter club has nearly 350 members, and other clubs eligible to join are those of Springfield, Joplin and St. Joseph.

Drivers Organize—The Tacoma Automobile Drivers' Association, of Tacoma, Wash., has recently been organized with S. Blanchard as president, Guy Younie treasurer and Oscar Selzberg conductor. The association now boasts of thirty-five members.

Demand Electric Signals—The county commissioners of the state of Washington, by resolutions, have formally announced their intention of causing the railroads approaching cities to install electric gong signals on every grade crossing. It is proposed by the county board that railroads shall place a gong, which will be operated by electricity, ½ to ¼ mile from crossings to warn motorists, teams and pedestrians.

Runs to the Minute—By equaling the Pennsylvania pacemaker's time of 3 hours and 51 minutes, A. G. Gushurst, a mail carrier, owner of a Moon, won the recent sociability run from Kansas City, Mo., to Belton. A variation in a checker's and Mr. Gushurst's watches delayed the announcement of his winning until Wednesday afternoon. Mr. Gushurst was killed November 10 while rounding a curve near Lawrence, Kas. The car was ditched and he was struck by a fender, suffering a fractured skull.

Enforces Tail Light Clause—Several more arrests have followed in Hartford, Conn., for violation of the law with relation to having a tail light so placed as to illuminate the rear marker. According to the new state law the marker must be so illuminated as to be legible at a distance of 60 feet. Several of the most prominent motorists have been brought into court. One young man, who was operating an electric, had no tail light at all. He told Judge Clark, in police court, that when he applied for his license the clerk in the office of the secretary of state said that he did not need one. The side lights of the car have red rear spots, and the owner thought this was sufficient, but it wasn't.

Stirs Up Back Bay—Residents of the Back Bay section of Boston are up in arms again over another proposed invasion of a big garage that is to be erected for the Peerless company in one of the choice sections of the aristocracy. Eugene N. Foss is preparing to build the garage. There are no restrictions on the land and he proposes to put up a six-story structure. It will be close to the dwellings of some prominent Bostonians and they object. Mr. Foss is the man who built the garage for the Locomobile company in the Back Bay and some of the residents took the matter to court and after a long series of hearings the Locomobile company was forced to vacate the premises. This did not please Mr. Foss, for it meant a big expenditure with no return. In the Peerless case, however, he claims he is in the right and it looks as if the protests will not amount to much.

Blames Motorists—Motor cars in Columbus are blamed for the death of a great majority of the 569 fowls which were picked up from the streets by the city garbage department during the month of October. This means that on an average more than twenty chickens, ducks, turkeys, etc., meet their death under the wheels of vehicles each day.

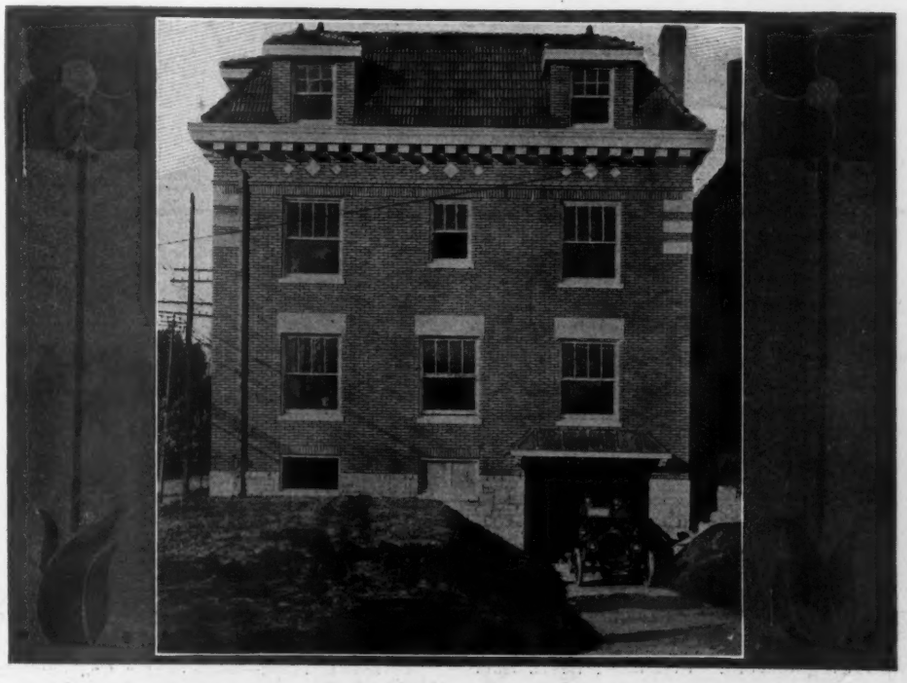
Milwaukee Buys Oil—The city of Milwaukee has purchased 100,000 gallons of asphaltum oil for use in sprinkling the streets next season. Another 100,000 gallons will be necessary to treat all streets, and a repeat order will be given next spring. All new and resurfaced macadam pavements will be treated first. The cost to property owners will be much less than $1 for every 30 feet of front. Water sprinkling costs from 80 to $1.50 a season. One coat of the oil will last an entire season or more.

Busy in Indiana—Not only have Indiana factories been turning out motor cars at a lively rate this season, but Hoosiers have also been buying them at a rate that has broken all previous records. This is shown in the records of the secretary of state, there having been 5,795 registrations during the first ten months of this year, as compared with 3,317 registrations during the corresponding period of last year. The registrations, including motor cycles, month by month, have been as follows: January, 93; February, 138; March, 536; April, 831; May, 877, June, 933; July, 795; August, 716; September, 497, and October, 379. The best month during last year was June, when there were 565 registrations. This record, of course, does not include persons who have purchased new cars and who have registered them under their old numbers.

All Car Space Gone—All the available space for cars was contracted for in the show to be held in Columbus, O., December 25 to January 1. The committee on arrangements, of which Perin B. Monypeny, Northern Hotel building, is chairman, is now booking accessories, with only a limited space left.

Stirred by New Law—The new law requiring town boards in Wisconsin to erect and maintain sign boards on important crossroads is being complied with more freely now that the penalty is in effect. They were given until November 1 to erect the signs, but few did so within the limit. No prosecutions have been brought, as the town boards pleaded that farmers have been so busy with crops that they could not get to work on the signs until now.

Contribute to Touring Benefits—One of the live motor car clubs of the country which has devoted its interests during the past year toward securing the maximum amount of benefit for the greatest number of motorists, as well as other users of the highways, is the Auburn Automobile Club, of Auburn, N. Y. Tourists from distant localities who have traveled through central New York have not failed to be impressed at the thoroughness of the work accomplished by the Auburn motorists. The club's great achievement this season was in securing the opening to travel of the free bridge, at the Seneca river, opened a short time ago. To the residents of Cayuga and Seneca counties, this bridge has been a connecting link of the greatest convenience.



PRIVATE GARAGE DESIGNED AND BUILT BY DR. HENRY, OF ST. LOUIS

Brief Business Announcements

Cleveland, O.—Jos. H. Greenwald has been appointed agent for the Marmon.

Utica, N. Y.—I. R. Gardinier has just closed a contract to represent the Franklin in this section.

Charleston, S. C.—The Beaufort Auto Transfer Co., of Beaufort, has been incorporated with a capital stock of $5,000.

Detroit, Mich.—Another car has joined the rapidly growing colony in this city. The newcomer is the Stearns, which is to be represented by Howard Palmer. Mr. Palmer has established his headquarters at 1221-1229 Woodward avenue under the name of the Palmer Auto Co. He is to represent the Stearns car exclusively.

Boston, Mass.—George Crittenden, who has been connected with the Whitten-Gilmore Co., has joined the sales department of the American Automobile Co., agent for the American car.

Trenton, N. J.—Articles of incorporation have been filed by the Spencer Motor Co., of Rahway. The company has a capital stock of $125,000, and has its principal office on Irving street. The company manufactures the Spencer four-cycle internal combustion motor, and also makes motor vehicles of all kinds.

Utica, N. Y.—Plans are being prepared for the erection of a new garage at Plant and Hart streets, for the use of Livingston & Stafford, of Saratoga Springs.

Houston, Tex.—W. F. Lemken is now connected with the Shelp Rubber Supply Co., and will act as manager of the accessory department.

Detroit, Mich.—Another new concern here is the Smith-Baldwin Machine Co., which is to engage in the manufacture of motors and machinery.

Columbus, O.—A certificate has been filed with the secretary of state by the Toledo Motor Co., increasing its capital stock from $10,000 to $2,000,000.

Atlanta, Ga.—The Overland Southern Co. has opened its new garage in the Peachtree Auditorium, and has at present accommodations for 150 machines.

Hartford, Conn.—In the future the Rambler will be represented in this city by Foster & Co., of 183 Allyn street. Shubel A. Foster is the head of the new agency.

Baltimore, Md.—M. Griffin, who has been appointed agent in this city for the Knox, has opened a new three-story fireproof garage at Park avenue and Howard street.

Kansas City, Mo.—The Monarch Motor Car Co. has just been organized with the following officers: President, K. L. Shellaberger; vice-president, F. A. Shellaberger; secretary, L. C. Shellaberger. They are to represent the Cole and DeMot cars.

Kansas City, Mo.—C. C. Lake has just organized the Lake Motor Car Co., and will act as agent for the Premier. Headquarters have been established at 322, 3222 Main street.

Atlanta, Ga.—Alfred Austell has been oppointed agent in this city for the Apperson. Preparations are being made for the opening of a garage and salesroom on Auburn avenue.

Boston, Mass.—In the future the Palmer & Singer Co. will make its home in this city at 49 Fairfield street, near Boyston street. The local agency is now under entirely new management.

Cleveland, O.—The Euclid Automobile Co., which is a newcomer in this city, is shortly to open up at Euclid avenue and Twenty-fourth street. J. C. Kortz is the president of the company.

Detroit, Mich.—In the future the Parry is to be sold in this city by the Neal-Ketchel Motor Sales Co., which has just been organized. Horace Ketchel and L. E. Neal are the members of the new company.

Portland, Ore.—Work has been commenced on the erection of the new garage which is to be erected by Charles E. Runyon at Sixth and Madison streets. Part of the building is to be occupied by one of the new taxicab companies, while it is understood that the White Automobile Co. will occupy the rest of the building.

Indianapolis, Ind.—The Peck Moto Car Co., which has been formerly known as the Cadillac Co., of Indianapolis, has removed from 15 Ohio street to 324 North Delaware street.

Brooklyn, N. Y.—C. I. Silver has been appointed agent for the Overland in this borough, and until the new building is completed will make his headquarters at 71 Flatbush avenue.

Albany, N. Y.—The B. and L. Auto Lamp Co., of New York city, has been incorporated with a capital stock of $3,400. Leon Lapis, of Brooklyn, is named as one of the incorporators.

Atlanta, Ga.—Steinahuer & Wright, who have just been appointed agents for the Packard in this city, have removed to their new location in the Murphy building, which was recently completed.

Baltimore, Md.—Plans are being prepared for the erection of a new garage at Mt. Royal avenue and Hunter alley, for the White Automobile Co. The new building is to be three stories in height and 77 by 156 feet.

Providence, R. I.—The Park Square Auto Station, a Boston concern, has opened a Rhode Island branch, with headquarters at 17 Snow street. The new concern will act as agents for the Stoddard-Dayton and the Alco.

Los Angeles, Cal.—Plans have been completed and the contract has been awarded for the erection of a new garage for the White company, on Flower street, between Pico and Twelfth streets. The new building is to be 185 by 155 feet.

Bainbridge, Ga.—Two new companies are now in business in this city, the Caldwell Automobile Co. and the Bowen-Shingler Auto Co. The Hines-Ansley Co., which has been in business for some time, is enlarging and improving its garage.

Mt. Morris, N. Y.—At the recent annual meeting of the stockholders of the Buffalo Auto Truck and Motor Co. the following officers were elected: President, J. F. White; vice-president, M. Gunnel; secretary, P. M. White; treasurer, E. L. Toy.

Los Angeles, Cal.—Leon T. Shettler, who is the agent for the Reo, Apperson, Kisselkar and Woods electric cars, has bought a half interest in the motor supply company of Ollier & Worthington, and in the future the firm will be known as the firm of Worthington & Shettler. Mr. Worthington, the senior member of the concern, is to act as manager.

RECENT INCORPORATIONS

Guthrie, Okla.—Dixie Motor Car Co., capital stock $100,000. Incorporators, H. C. Benner, C. L. Sutton and T. H. Lindsay.

Camden, N. J.—Bard Automobile Co., capital stock $250,000; to manufacture and deal in motor cars, etc. Incorporators, F. N. Hansell, G. B. H. Martin and J. A. McPeak.

Detroit, Mich.—Kermath Mfg. Co., capital stock $20,000; to engage in the making of parts and special machinery. Incorporators, J. H. and H. E. Avery and James Kermath.

Angola, Ind.—Universal Tire Protector Co., capital stock $30,000. Incorporators, S. C. Wolfe, E. S. Croxton and J. E. Wolf.

Chicago.—W. M. Trout Automobile Livery Co., capital stock $2,500; to operate a garage and livery stable. Incorporators, W. H. Trout, W. L. Wenger and W. J. Miller.

Chicago, Ill.—Simplex Coupler Co., capital stock $2,500; to manufacture, deal in motors, engines and metal specialties. Incorporators, N. ....den, H. A. Mayfield and S. G. Petterson.

Brooklyn, N. Y.—U. W. Roemmele Motor Car Co., capital stock $5,000; to deal in motor cars, etc. Incorporators, John and Josephine Roemmele and F. W. Schluchtner.

New York—Elmere Motor Car Co., capital stock $20,000; to engage in the manufacture of motors, engines, machines, motor cars, carriages, boats, etc. Incorporators, G. W. Post, Jr., C. J. Post and J. N. Blair.

Fort Worth, Tex.—Texas Motor Sales Co., capital stock $20,000. Incorporators, H. E. Crowley, I. W. Wood and J. O. Wright.

Nashville, Tenn.—Dixie Motor Co., capital stock $15,000. Incorporators, C. E. Griffin, B. R. Persor, E. K. McNeil and C. E. Weis.